Eltek R3601-W2

User Manual

R3601-W2

User Manual

Version: R3601-W2 V.1.2

Preface

Brief Introduction

This manual provides technical information on how to configure and operate application for your R3601-W2 unit.
Chapter 1: Provides an overview of R3601-W2
Chapter 2: Introduces the product
Chapter 3: Introduces the configuration via WEB-based Management

Intended Audience

System administrators, Network engineers and Maintenance technicians.

Style Convention

Table 1 Style convention used in this manual

Style	Meanings
\	Multi-level catalogs or menus are separated by '\' character. For instance "file\new\directory" means the menu item "directory" in menu "new" which in turn in the menu "file".
	Used to highlight important area in diagrams.
<>	Indicates the input data from operating terminal.
[]	Indicates one parameter configuration or a function.
{ XX | XX }	Indicates a syntax of CLI command options, multiple command options in one "{}", separated by "|", means exclusive single selection.
host(italic)	Indicates user specified parameters. e.g. for command: tftp *host* {get | put} {sys | cfg} *filename* The *host* and *filename* should be replaced by user specified real parameters, such as: tftp 138.0.0.1 get sys sysfile.bin

Table 2 Convention for Mouse Operation

Operation	Meanings
Click	Press and release a mouse button quickly
Double click	Quickly press and release a mouse button twice
Drag	Press a mouse button and move the mouse

Table 3 Convention for Keyboard Operation

Style	Meanings
Ctrl + C	"+"means an operation which presses down several keys in the keyboard in the same time. E.g. "Ctrl + C" means press down the key of "Ctrl" and "C" in the same time。

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1 Overview

The Eltek R3601-W2 is a SFP (Fiber) Gigabit Ethernet Wireless 11n Gateway. The Eltek R3601-W2 is perfectly fitting for SoHo, SME or extended networks.
The device provides carriers and users with accelerated access to next-generation network services including internet and intranet access, as well as web-based research, videoconferencing, gaming applications, e-commerce, IPTV, web hosting and many more functions.

2 Product Introduction

2.1 Appearance

Figure 2-1 *R3601-W2 Front View*

Table 2-1 LED

LED	Status	Indication
PWR	Off	Power is off
	Solid Green	Device is running
INTERNET	Off	Power is off
	Slow Flash Green	INTERNET type WAN PPPoE connection authenticate failed
	Solid Green	INTERNET type WAN connection is up
SFP	Off	No optical signal is detected
	Solid Green	Optical signal is detected
WAN	Off	No Ethernet signal is detected
	Flash Green	User data going through Ethernet port
	Solid Green	Ethernet interface is ready to work
LAN1~LAN4	Off	No Ethernet signal is detected
	Flash Green	User data going through Ethernet port
	Solid Green	Ethernet interface is ready to work
WLAN	Off	WLAN is off
	Flash Green	User data going through WLAN
	Solid Green	WLAN interface is ready to work
VPN	Off	No VPN connection
	Solid Green	VPN is established
3G	Off	NO Dongle connection
	Solid Green	3G/4G connection is established

Figure 2-2 *R3601-W2 Rear View*

- WAN: 1000/100/10Mpbs ethernet ports.
- LAN: 1000/100/10Mpbs ethernet ports.
- SFP: Gigabit fiber interface.
- SD: Interface for SD card. (optional)
- POWER: DC power input connector.
- Reset button: Use the button to restore the device to the factory defaults.
- WPS: WIFI WPS switch.

2.2 Packaging Content

Following items are included in the R3601-W2 packaging content:

Packaging Content	
1x R3601-W2 SFP Gigabit Ethernet WLAN 11n Gateway	
1x Power Adapter AC Adapter, 12VDC / 1A, Model: JY-12100.	
1x Ethernet cable CAT5, UTP (unshielded twisted pair), Color yellow (TR-068), Cord grip connectors, Connector both side with RJ45 – 8/8 PIN, molded, length 2m	
1x QsG Printed Quick start Guide	

Please note that there is no driver needed for the devices, therefore a CD-ROM is not necessary and not part of the packaging content.

2.3 Hardware Interface

Table 2–2 Hardware interface

LAN	4 100/1000BASE-T ports
WAN	1 FE ethernet port or 1 GE optical port
WIFI	4 WIFI access point, support 802.11b/g/n
SFP	1 Gigabit fiber interface
USB	1 USB 2.0 port, use for storage or 3G modem

2.4 Features

Data Network

- **WAN:** 1xGE,1xSFP and 1xUSB port for 2G/3G USB Modem Connectivity
- **LAN:** 2x10/100/1000 Mbps Ethernet Port
- **WAN Access Mode:** Static IP address, PPPoE, DHCP, PPTP and L2TP
- **Networking Interface:** Multi WAN, Bridge Mode, 802.1Q
- **QOS:** Destination/Source MAC/IP, Application, DSCP, Supports Bandwidth Control
- **Advance Routing:** Static Route, Policy Route, DNS Proxy, RIP
- **Internal Address Management:** DHCP Server, IP and MAC Address Bind, DHCP Relay
- **Networking-Protocols:** TCP/IP(IPv4/v6),UDP,RTP,SNTP,NAT,DHCP,DNS,DDNS,DLNA
- **VPN:** IPSEC,PPTP,L2TP
- **IPTV:** IGMP Proxy/Snooping, IPTV Bridge

Management

- **Management Protocol:** CLI,SNMPV1/2,Tr069,Web
- **LED Indications:** Total 12LEDS for Power, WAN/LAN, Phone
- **Control Button:** WPS Button, WLAN Button, Power Switch, Reset Button

NAT & Firewall & Security

- **Supports ALG, DMZ, PAT**
- **Firewall Protection:** IDS&IPS, Block Ping/ICMP/IDENT, SPI Firewall, Portscan restriction
- **Access control:** Blocking by URL,IP Address, Mac Address, Protocol Type, Port

WIFI WLAN

- **Standard:** IEEE 802.11b/g/n(2.4GHz)
- **Security:** WEP,WPA,WPA2,PWA-PSK,WPA2-PSK
- **WIFI Features:** WMM,WLAN-LAN Isolation, Multi SSID(X4), AP Isolation

- **Antenna Type:** 2R2T

USB storage/Print

- Support USB storage
- Support print sharing

2.5 Working Environment

Environment requirement includes storage temperature, working temperature and humidity.

- Storage Temperature: -40ºC - 70ºC
- Long Time Working Temperature: -10ºC - 50ºC
- Short Time Working Temperature: -15ºC - 60ºC
- Environment Humidity: 5% - 95% RH, no coagulation

3 Configuration Introduction

3.1 Computer Configuration

Before starting the Eltek R3601-W2 configuration, please kindly configure your computer as below, to have an automatic IP address / DNS server.

To do this, you will need to configure your PC's network settings to **obtain an IP address automatically**. Computers use IP addresses to communicate with each other across a network or the internet.

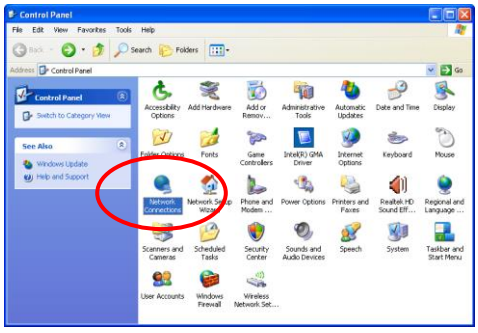
Find out which operating system your computer is running, such as Windows XP, Windows Vista, Windows 7, Windows 8 or Mac OS 9.x, 10.x. You can find out by clicking on **Start** -> **Control Panel** and double-click on the **System** menu.

Once you know which operating system you are running, follow the directions in the corresponding step for your computer's operating system.

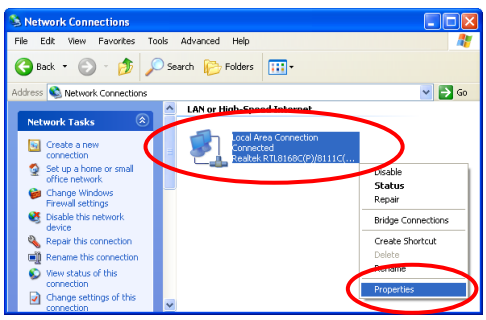
The next few pages give you step by step instruction, how to configure your TCP/IP settings based on the type of Windows or Mac operating system you are using.

3.1.1 Windows XP

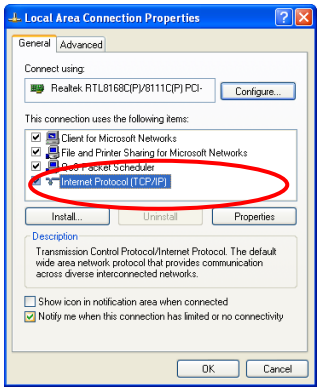
1. Click on "**Start**" -> "**Control Panel**" (in Classic View). In the Control Panel, double click on "**Network Connections**" to continue.



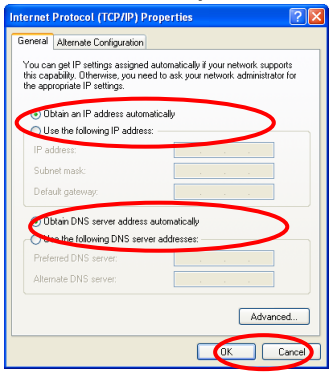
2. Single RIGHT click on "**Local Area Connection**", then click "**Properties**".



3. Double click on "**Internet Protocol (TCP/IP)".**



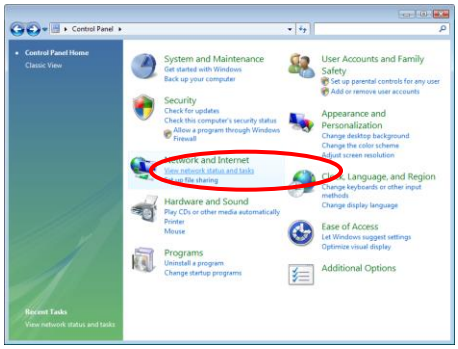
4. Check "**Obtain an IP address automatically**" and "Obtain DNS server address automatically" then click on "**OK**" to continue.


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

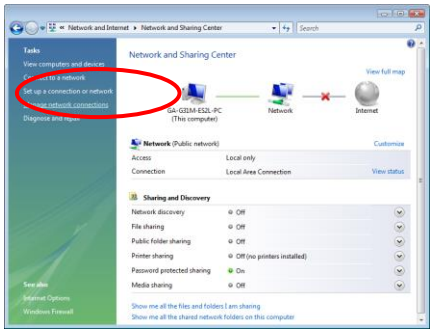
5. Click "**Show icon in notification area when connected**" then Click on "**OK**" to complete the setup procedures.

3.1.2 Windows Vista-32/64

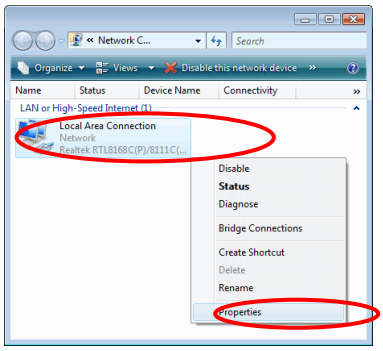
1. Click on "**Start**" -> "**Control Panel**" -> "**View network status and tasks**".



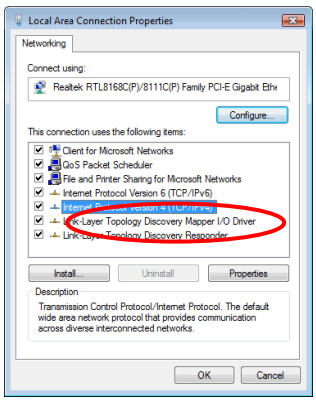
2. Click on "**Manage network connections**" to continue.



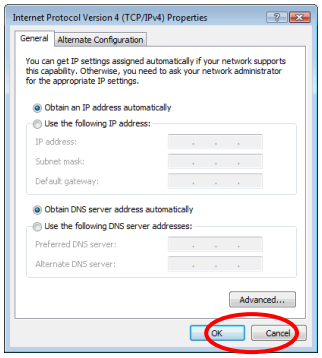
3. Single RIGHT click on "**Local Area Connection**", then click "**Properties**".



4. Double click on "**Internet Protocol Version 4 (TCP/IPv4)**".



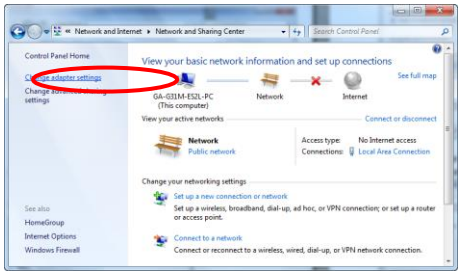
5. Check "**Obtain an IP address automatically**" and "Obtain DNS server address automatically" then click on "**OK**" to continue.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

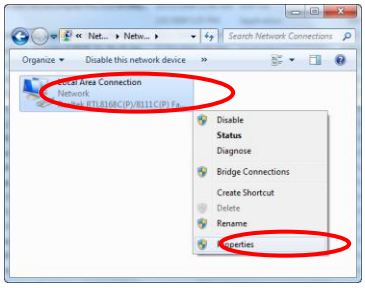
3.1.3 Windows 7-32/64

1. Click on "**Start**" -> "**Control Panel**" (in Category View) -> "**View network status and tasks**".

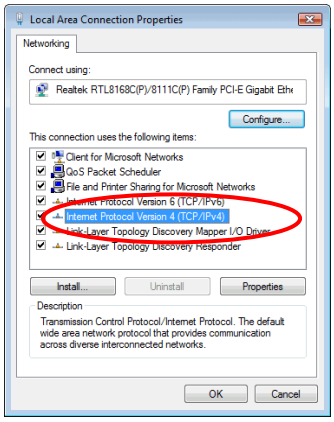
2. In the Control Panel Home, click on "**Change adapter settings**" to continue.



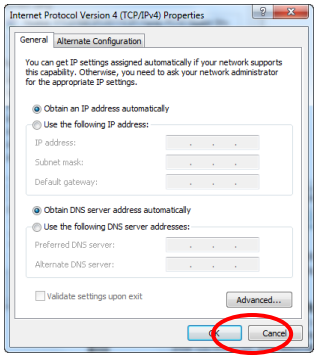
3. Single RIGHT click on "**Local Area Connection**", then click "**Properties**".



4. Double click on "**Internet Protocol Version 4 (TCP/IPv4)**".

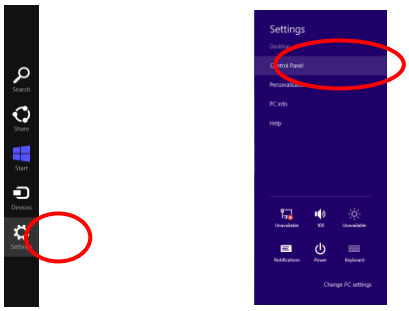


5. Check "**Obtain an IP address automatically**" and "Obtain DNS server address automatically" then click on "**OK**" to continue.

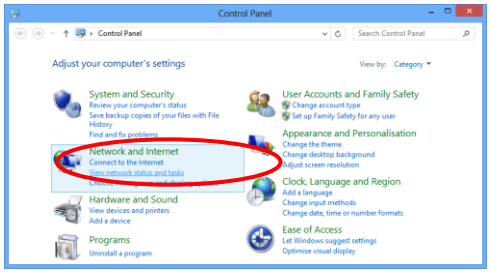

Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

3.1.4 Windows 8-32/64

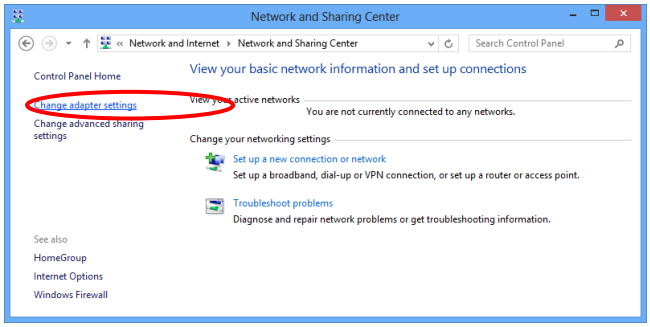
1. Move the mouse or tap to the upper right corner and click on "**Settings**" and go to "**Control Panel**".



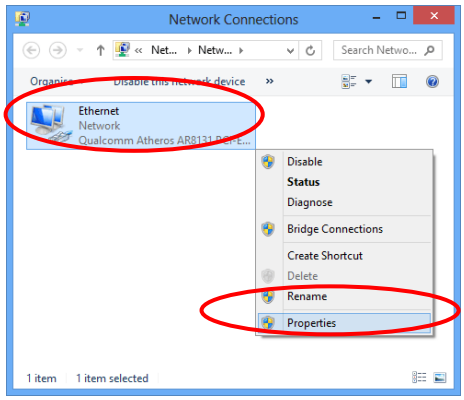
2. Click on "**View network status and tasks**".



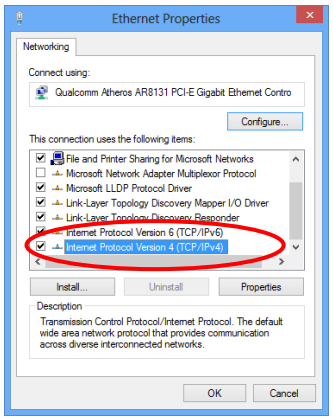
3. In the Control Panel Home, click on "**Change adapter settings**" to continue.


Network and Sharing Center
Network and Internet
Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
You are not currently connected to any networks.
Change your networking settings
Set up a new connection or network
Set up a broadband, dial-up or VPN connection, or set up a router or access point.
Troubleshoot problems
Diagnose and repair network problems or get troubleshooting information.
See also
HomeGroup
Internet Options
Windows Firewall

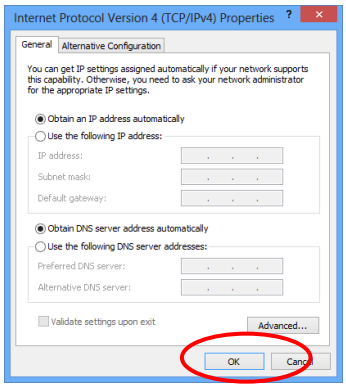
4. Single RIGHT click on "**Ethernet**", then click "**Properties**".



5. Double click on "**Internet Protocol Version 4 (TCP/IPv4)**".

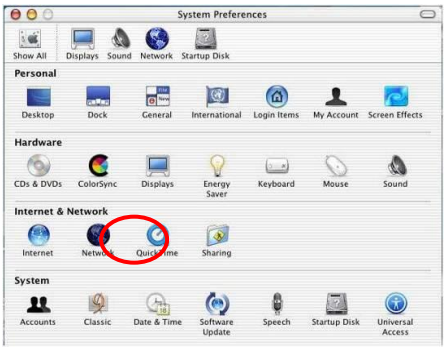


6. Check "**Obtain an IP address automatically**" and "Obtain DNS server address automatically" then click on "**OK**" to continue.

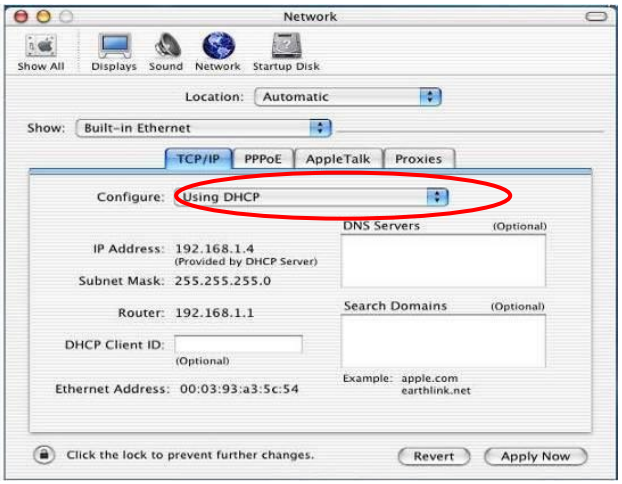

Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternative Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternative DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

3.1.5 Mac OS X 10.6

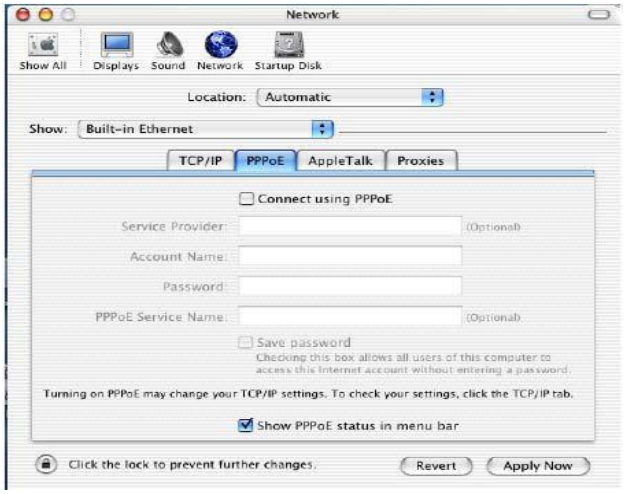
1. From the **Apple Menu**, select **System Preferences**.
2. Click on the **Network** icon in the **Internet & Network** area.



3. From the **Show** pull-down select **Built-in Ethernet**.
   On the **TCP/IP** tab, select **Using DHCP** from the **Configure** pull-down menu



4. On the **PPPoE** tab, make sure that the **Connect using PPPoE** check box is **NOT** activated
   Click **Apply Now**.



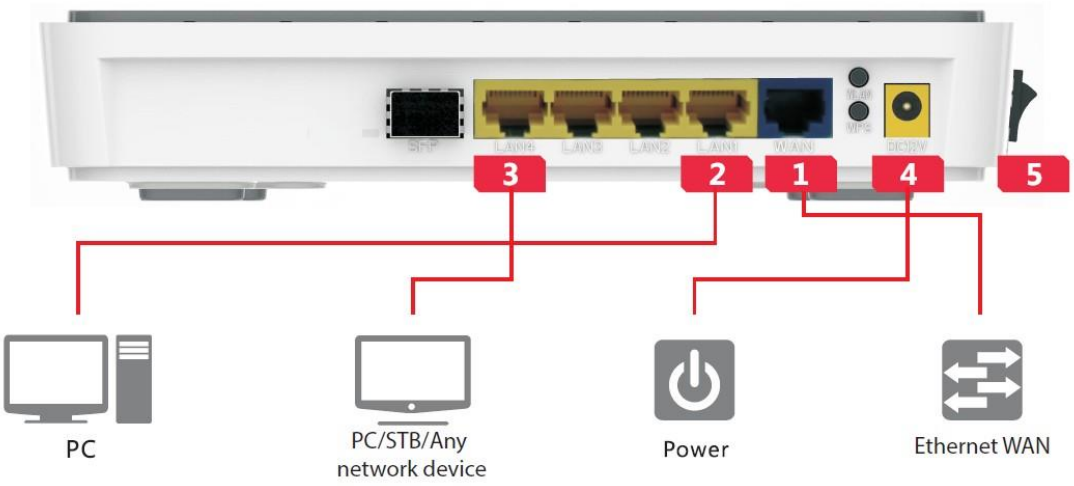
5. **Close** the Network window.

3.2 Device Configuration

3.2.1 Connecting via Ethernet WAN

The Eltek R3601-W2 is a SFP Gigabit Ethernet Gateway. It cannot be connected to the phone network, nor can it be used as an ADSL Router.

1. **Connecting Internet** 1
   With a network cable connect the uplink to the WAN port on the back of the device.
2. **Connecting PC** 2
   Use the provided Ethernet cable (yellow), connect one end of the network cable to any interface from "LAN1" to "LAN4" and connect the other end to the PC.
3. **Connecting further PC's or a digital receiver (STB)** 3
   Use another Ethernet cable (not provided in packaging content), connect one end of the network cable to any free interface from "LAN1" to "LAN4" and connect the other end to your other PC, digital receiver or any other network device.
4. **Connecting Power Supply** 4
   Using the *supplied power adapter*, connect the power cord into the round interface on the rear panel of device
5. **Power-on** 5
   Turn on the device by pressing the power switch on the side of the device. After switching on, the front panel Power LED lights.



3.2.2 Connecting via Fiber WAN

The Eltek R3601-W2 is an SFP Gigabit Ethernet Gateway. It cannot be connected to the phone network, nor can it be used as an ADSL Router.

1. SFP Slot and Fiber cable connection 1

1.1Put the SFP into the SFP slot on the back of the R3601-W2

1.2Connect the Fiber cable with the SFP module on the back of the device

WARNING:

- Please do not bend the fiber cable sharply. Use gradual and smooth bends to avoid any damage on the glass fiber.
- Please do not remove the dust caps from unused fiber cables.
- To avoid signal loss, please do not touch the fiber connectors and their ends and keep them always clean and free from dirt, debris and dust.
- Please do not look steadily at the fiber port when connecting the fiber, because the invisible light may harm your vision.

2. Connecting PC 2

Use the provided Ethernet cable (yellow), connect one end of the network cable to any interface from "LAN1" to "LAN4" and connect the other end to the PC.

3. Connecting further PC's or a digital receiver (STB) 3

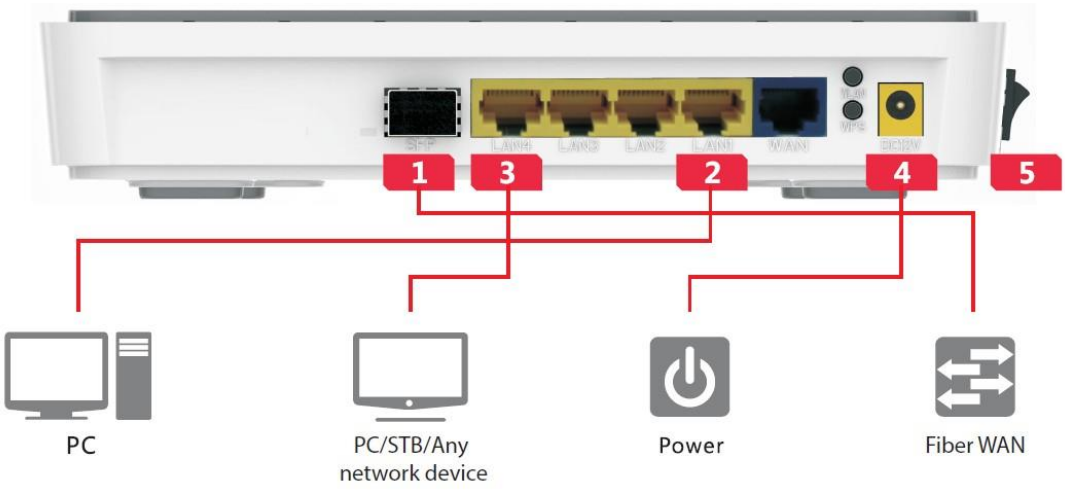
Use another Ethernet cable (not provided in packaging content), connect one end of the network cable to any free interface from "LAN1" to "LAN4" and connect the other end to your other PC, digital receiver or any other network device.

4. Connecting Power Supply 4

Using the *supplied* power adapter, connect the power cord into the round interface on the rear panel of device

5. Power-on 5

Turn on the device by pressing the power switch on the side of the device. After switching on, the front panel Power LED lights.



3.2.3 Web Configuration

To configure the device via web browser, please make sure that your PC obtain an IP address automatically as described in chapter 4.1.x (Computer Configuration).
Note: At least one properly-configured PC/Notebook must be connected to the network (either connected directly to the LAN port of the device or through Wireless LAN).

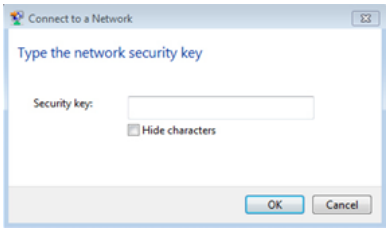
Connecting via LAN Port
Please refer to chapter 4.2.1/4.2.2 point 2 or just connect the Ethernet cable to the LAN port of the Eltek R3601-W2 and the other end to the LAN Port of your computer.

Connecting via Wireless LAN
To connect the device through Wireless LAN, please proceed as follows:

1. Click on the Wireless icon at the bottom right corner.

2. Choose the Eltek R3601-W2 SSID to connect through the wireless network (SSID shown on the label on the bottom of the device)

3. Please enter your WPA Key shown on the label on the bottom of the device



4. Your computer is now connected successfully with the Eltek R3601-W2

5. To proceed with the web configuration, please refer to the next chapter.

3.2.4 Access to the Eltek R3601-W2 configuration

After connecting the Eltek R3601-W2, the WLAN Fiber Gateway will be ready for use. However, if you'd like to change its advanced settings, use the Router's web-based utility. You can access the utility via a web browser on a computer connected to the Router.

The web-based utility has these main tabs: Home, Network, Data Service and System. Additional tabs will be available after you click one of the main tabs.

To access the web-based utility, launch the web browser on your computer and please proceed as follows:

1. Start your web browser and type the private IP address of the Eltek R3601-W2 in the URL field: **192.168.1.1**

2. After connecting to the device, you will be promoted to enter username and password.
   The first time you open the web-user interface, use the **default username and password as printed on the data sheet you received with the device**.

3. Click **Login** to continue

   Note: The first screen that appears is the Home screen. This displays the status, as well as information about the Fiber Gateway and its current settings.

   In case you want to change any setting, please go to the corresponding menu function.

3.3 Home

After successful login, you will see the main menus on the top of the Web-based GUI. The **System Status** page provides the current status information about the Gateway. All information is read-only.

Choose the menu **Home** to load the following page.

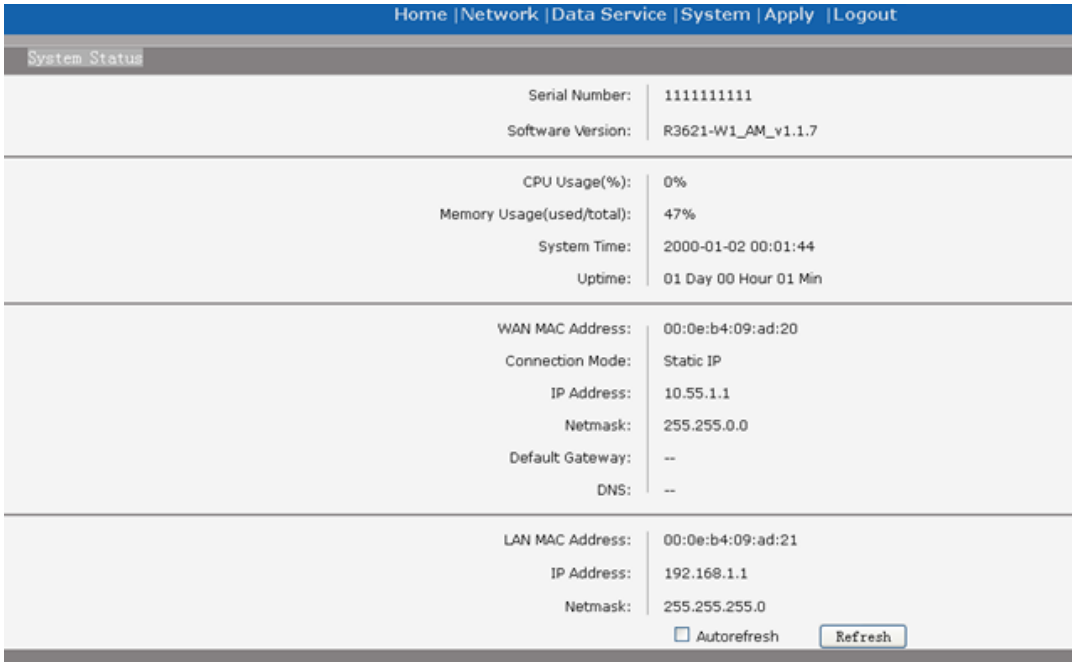


Figure 3-1 *System Status*

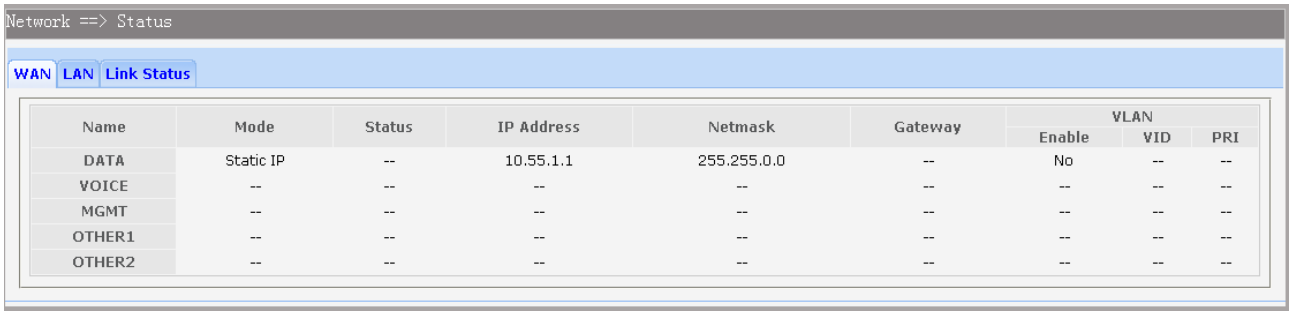
3.4 Network Configuration

3.4.1 Network Status

The Status page shows all WAN and LAN interfaces configuration, and all physical ports connection status related to this device.

3.4.1.1 WAN Status

Choose the menu **Network→Status→WAN** to load the following page.



Name	Mode	Status	IP Address	Netmask	Gateway	VLAN		
						Enable	VID	PRI
DATA	Static IP	--	10.55.1.1	255.255.0.0	--	No	--	--
VOICE	--	--	--	--	--	--	--	--
MGMT	--	--	--	--	--	--	--	--
OTHER1	--	--	--	--	--	--	--	--
OTHER2	--	--	--	--	--	--	--	--

Figure 3-2 *WAN Status*

3.4.1.2 LAN Status

Choose the menu **Network→Status→LAN** to load the following page.

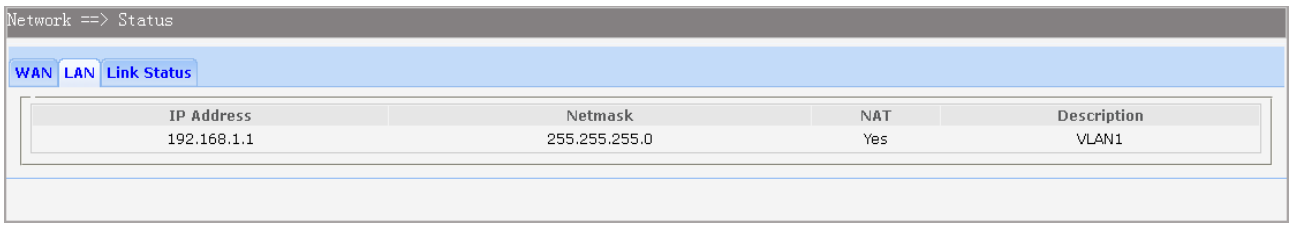


Figure 3-3 *LAN Status*

3.4.1.3 Link Status

Choose the menu **Network→Status→Link Status** to load the following page.

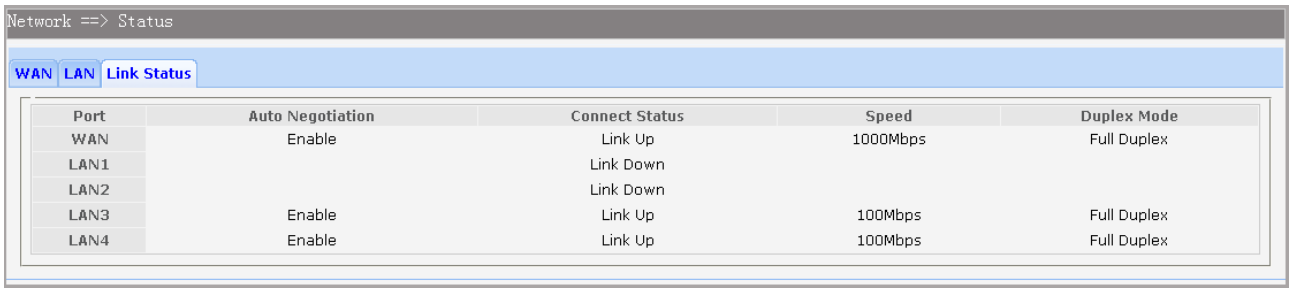


Figure 3-4 *Link Status*

3.4.2 WAN Configuration

The device supports 4 WAN interfaces:DATA, MGMT,OTHER1,OTHER2; Every WAN interface provides the following five Internet connection types: Static IP,DHCP,PPPoE,PPTP,L2TP.

Choose the menu **Network→WAN** to load the configuration show page.

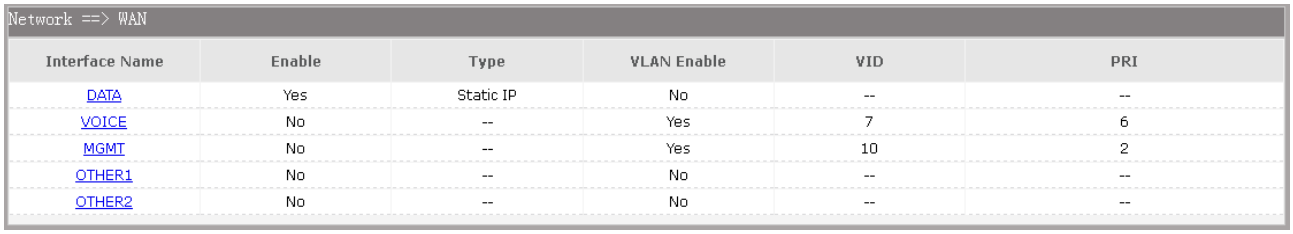


Figure 3-5 *WAN page*

Select an **Interface Name** to load the configuration page.

1) Static IP

If a static IP address has been provided by your ISP, please choose the Static IP connection type to configure the parameters for WAN port manually.

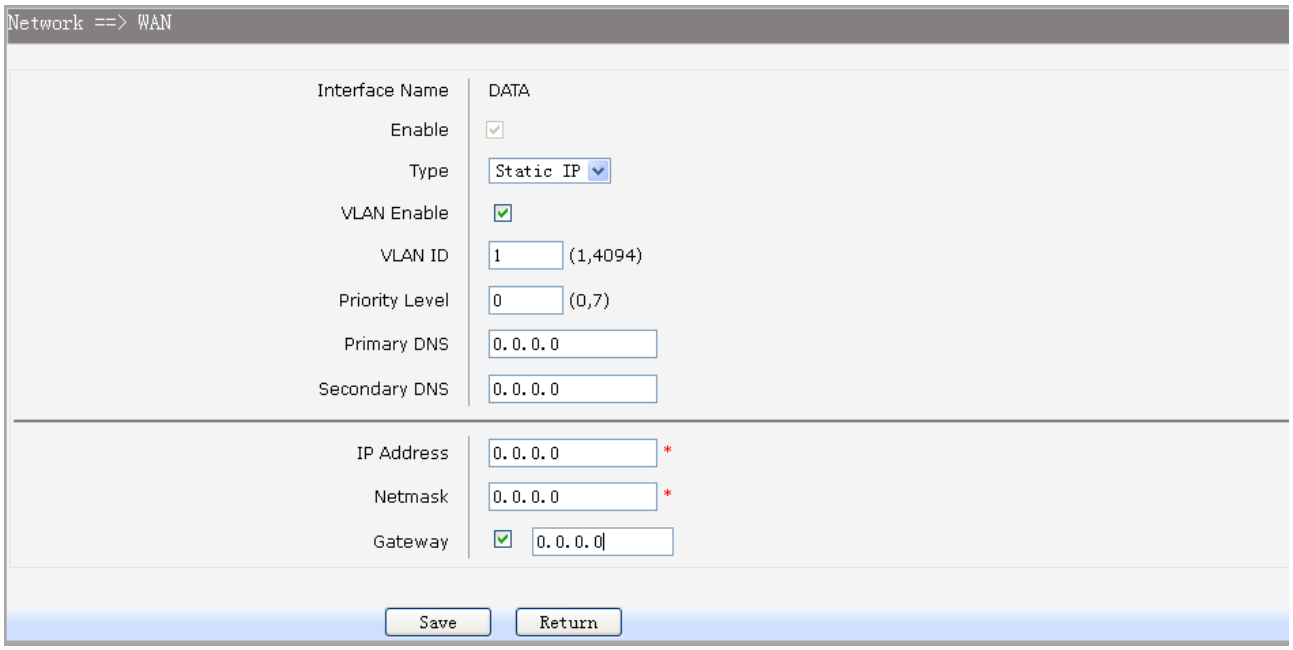


Figure 3-6 *WAN-Static IP*

The following items are displayed on this screen:

► **Enable:** Enable this WAN interface (DATA can't be disabled).
► **Type:** Select Static IP if your ISP has assigned a static IP address for your.
► **VLAN Enable:** Optional. Enable VLAN to configure VLAN ID and VLAN Priority Level.
► **VLAN ID:** Optional. VLAN ID of this WAN interface.
► **Priority Level:** Optional. VLAN Priority Level of this WAN interface.
► **Primary DNS:** Enter the IP address of your ISP's Primary DNS (Domain Name Server). If you are not clear, please consult your ISP. It's not allowed to access the Internet via domain name if the Primary DNS field is blank.
► **Secondary DNS:** Optional. If a Secondary DNS Server address is available, enter it.
► **IP Address:** Enter the IP address assigned by your ISP. If you are not clear, please consult your ISP.
► **Netmask:** Enter the Subnet Mask assigned by your ISP.
► **Gateway:** Optional. Enter the Gateway assigned by your ISP.

2) DHCP

If your ISP (Internet Service Provider) assigns the IP address automatically, please choose the DHCP connection type to obtain the parameters for WAN port automatically.

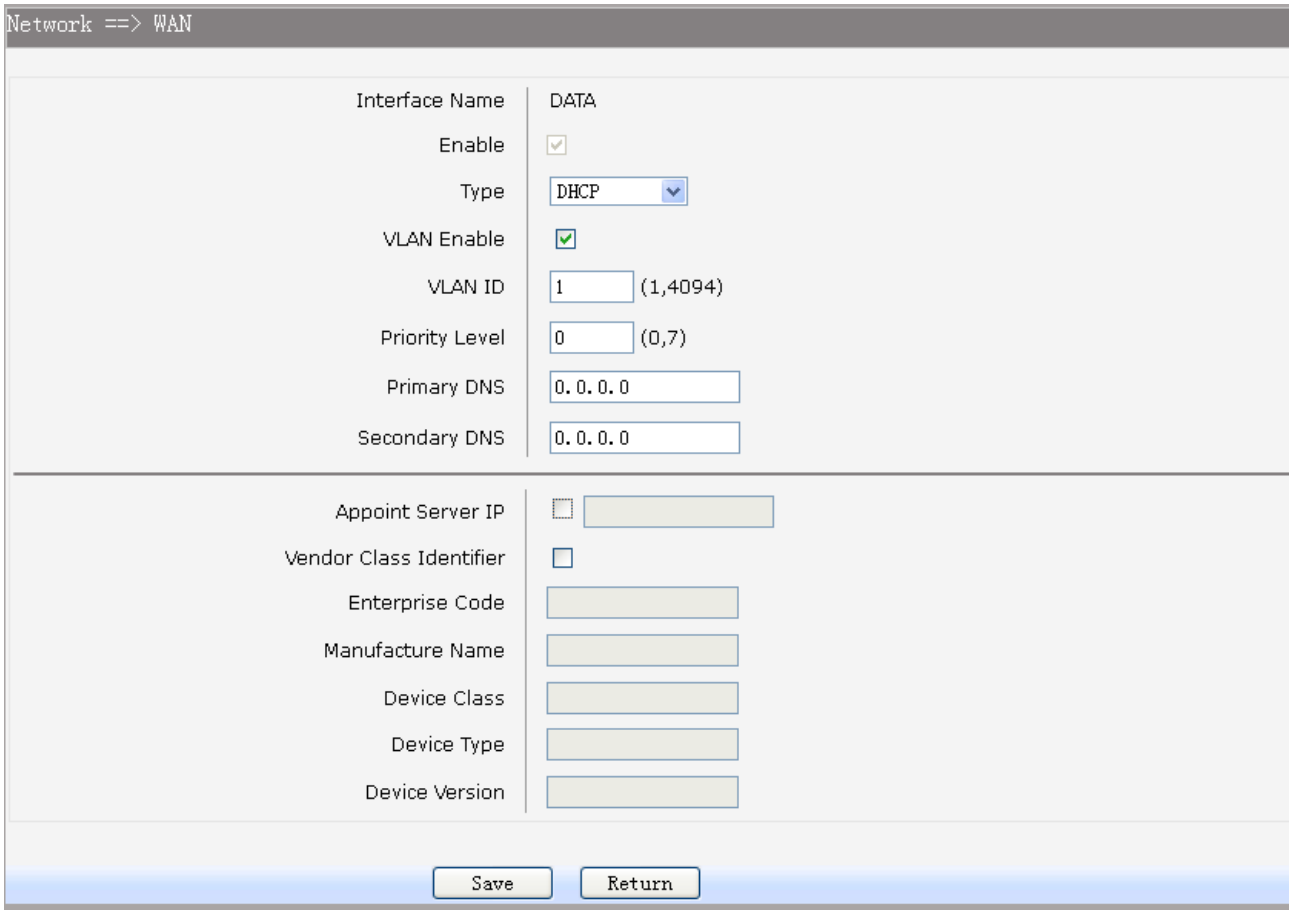


Figure 3-7 *WAN-DHCP*

The following items are displayed on this screen:

► **Enable:** Enable this WAN interface (DATA can't be disabled).

► **Type:** Select DHCP if your ISP assigns the IP address automatically.

► **VLAN Enable:** Optional. Enable VLAN to configure VLAN ID and VLAN Priority Level.

► **VLAN ID:** Optional. VLAN ID of this WAN interface.

► **Priority Level:** Optional. VLAN Priority Level of this WAN interface.

► **Primary DNS:** Enter the IP address of your ISP's Primary DNS (Domain Name Server) manually. If you are not clear, please consult your ISP. It's not allowed to access the Internet via domain name if the Primary DNS field is blank.

► **Secondary DNS:** Optional. If a Secondary DNS Server address is available, enter it.

► **Appoint Server IP:** Optional. If network has multiple DHCP servers, enter the IP address of your ISP'S DHCP server

► **Vendor Class Identifier:** Optional. This option (60) is used by DHCP clients to optionally identify the vendor type and configuration of a DHCP client.
► **Enterprise Code:** Optional.
► **Manufacture Name:** Optional.
► **Device Class:** Optional.
► **Device Type:** Optional.
► **Device Version:** Optional.

3) PPPoE

If your ISP (Internet Service Provider) has provided the account information for the PPPoE connection, please choose the PPPoE connection type (Used mainly for DSL Internet service).

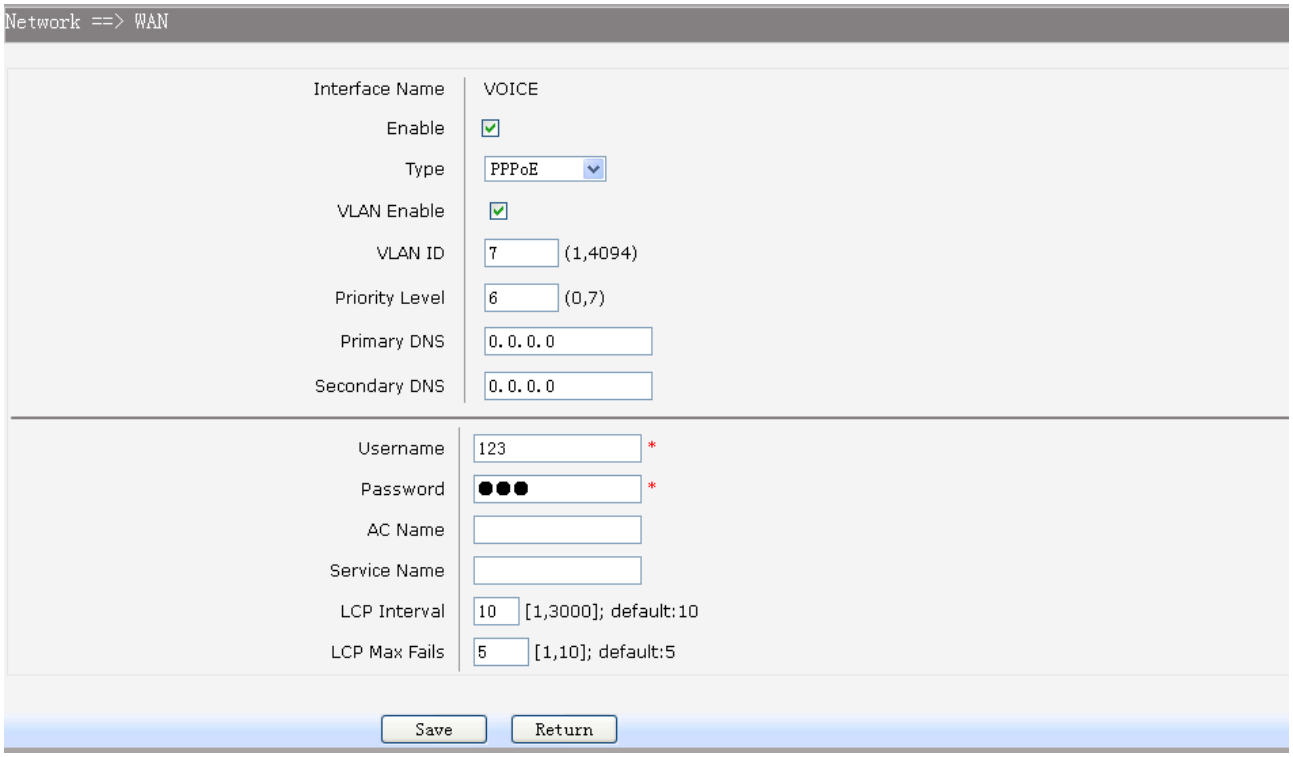


Figure 3-8 *WAN-PPPoE*

The following items are displayed on this screen:
► **Enable:** Enable this WAN interface (DATA can't be disabled).
► **Type:** Select PPPoE if your ISP provides xDSL Virtual Dial-up connection.
► **VLAN Enable:** Optional. Enable VLAN to configure VLAN ID and VLAN Priority Level.
► **VLAN ID:** Optional. VLAN ID of this WAN interface.
► **Priority Level:** Optional. VLAN Priority Level of this WAN interface.
► **Primary DNS:** Enter the IP address of your ISP's Primary DNS (Domain Name Server) manually. If you are not clear, please consult your ISP. It's not allowed to access the Internet via domain name if the Primary DNS field is blank.

► **Secondary DNS:** Optional. If a Secondary DNS Server address is available, enter it.

► **Username:** Enter the Account Name provided by your ISP. If you are not clear, please consult your ISP.

► **Password:** Enter the Password provided by your ISP.

► **Service Name /AC Name:** Optional. The service name and AC (Access Concentrator) name, which should not be configured unless you are sure it is necessary for your ISP. In most cases, leaving these fields blank will work.

► **LCP Interval:** PPPoE will send an LCP echo-request frame to the peer every **LCP interval** seconds.

► **LCP Max Fails:** PPPoE will presume the peer to be dead if **LCP Max Fails** LCP echo-requests are send without receiving a valid LCP echo-reply.

4) L2TP

If your ISP (Internet Service Provider) has provided the account information for the L2TP connection, please choose the L2TP connection type.

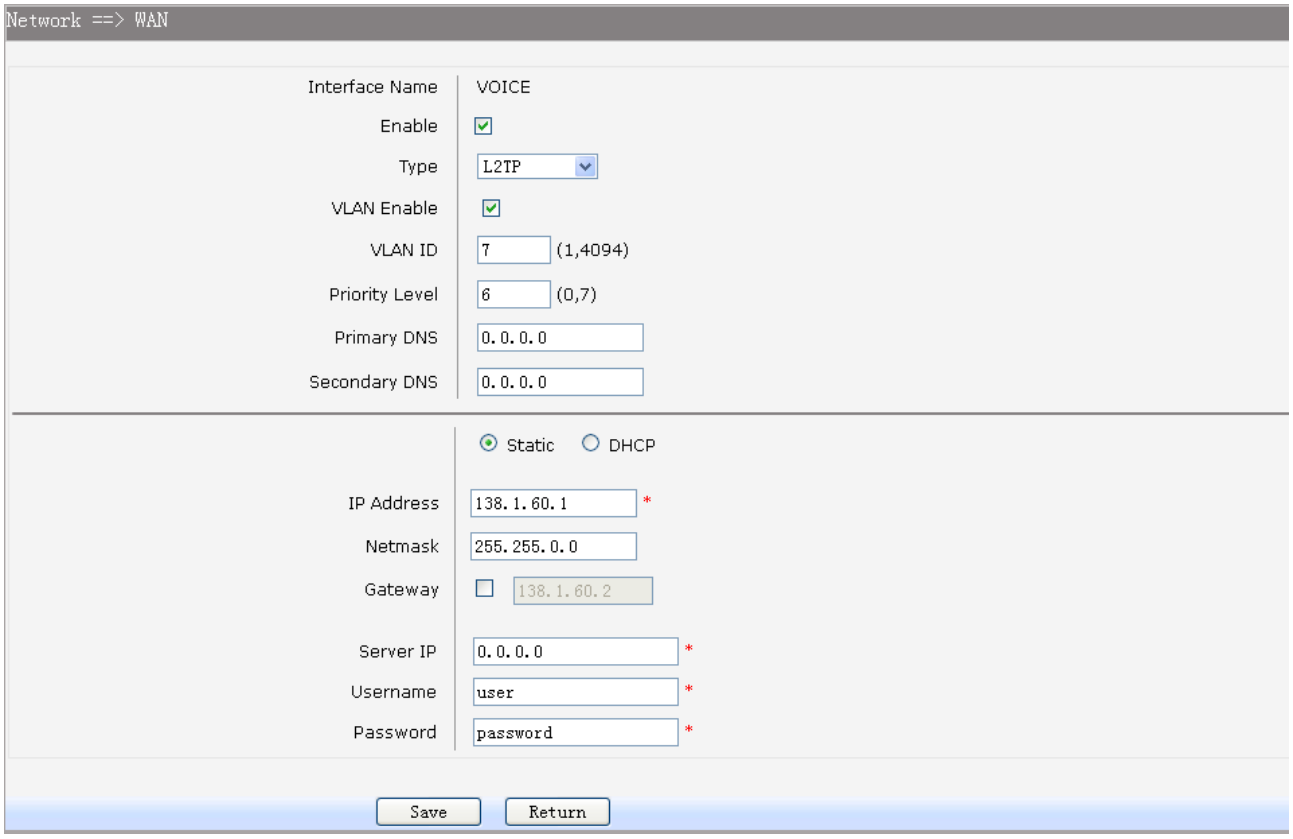


Figure 3-9 *WAN-L2TP*

The following items are displayed on this screen:

► **Enable:** Enable this WAN interface (DATA can't be disabled).

► **Type:** Select L2TP if your ISP provides a L2TP connection.

► **VLAN Enable:** Optional. Enable VLAN to configure VLAN ID and VLAN Priority Level.

► **VLAN ID:** Optional. VLAN ID of this WAN interface.

► **Priority Level:** Optional. VLAN Priority Level of this WAN interface.

► **Primary DNS:** Enter the IP address of your ISP's Primary DNS (Domain Name Server). If you are not clear, please consult your ISP. It's not allowed to access the Internet via domain name if the Primary DNS field is blank.

► **Secondary DNS:** Optional. If a Secondary DNS Server address is available, enter it.

► **Server IP:** Enter the Server IP provided by your ISP.

► **Username:** Enter the Account Name provided by your ISP. If you are not clear, please consult your ISP.

► **Password:** Enter the Password provided by your ISP.

Secondary Connection: Here allow you to configure the secondary connection. DHCP and Static IP connection types are provided.

If **Static** is selected:

► **IP Address:** If Static IP is selected, configure the IP address of WAN port.

► **Netmask:** If Static IP is selected, configure the subnet mask of WAN port.

► **Gateway:** Optional. If Static IP is selected, configure the default gateway of WAN port.

If **DHCP** is selected:

► **Appoint Server IP:** Optional. If network has multiple DHCP servers, enter the IP address of your ISP's DHCP server.

►**Vendor Class Identifier:** Optional. This option (60) is used by DHCP clients to optionally identify the vendor type and configuration of a DHCP client.

► **Enterprise Code:** Optional.

► **Manufacture Name:** Optional.

► **Device Class:** Optional.

► **Device Type:** Optional.

► **Device Version:** Optional.

5) PPTP

If your ISP (Internet Service Provider) has provided the account information for the PPTP connection, please choose the PPTP connection type.

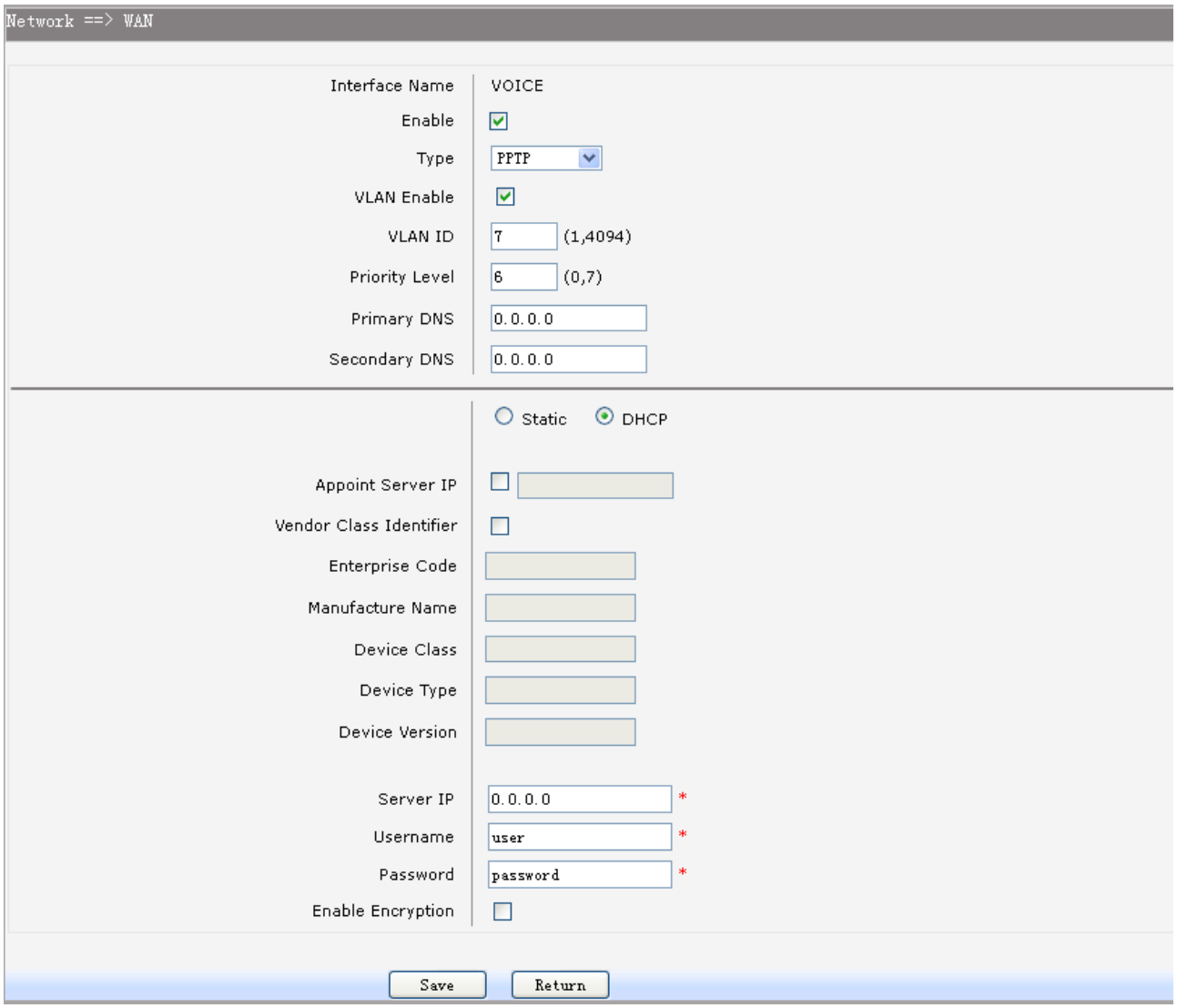


Figure 3-10 *WAN-PPTP*

The following items are displayed on this screen:

► **Enable:** Enable this WAN interface (DATA can't be disabled).

► **Type:** Select PPTP if your ISP provides a PPTP connection.

► **VLAN Enable:** Optional. Enable VLAN to configure VLAN ID and VLAN Priority Level.

► **VLAN ID:** Optional. VLAN ID of this WAN interface.

► **Priority Level:** Optional. VLAN Priority Level of this WAN interface.

► **Primary DNS:** Enter the IP address of your ISP's Primary DNS (Domain Name Server) manually. If you are not clear, please consult your ISP. It's not allowed to access the Internet via domain name if the Primary DNS field is blank.

► **Secondary DNS:** Optional. If a Secondary DNS Server address is available, enter it.

► **Server IP:** Enter the Server IP provided by your ISP.

► **Username:** Enter the Account Name provided by your ISP. If you are not clear, please consult your ISP.

► **Password:** Enter the Password provided by your ISP.
► **Enable Encryption:** Enable PPTP link encryption.

Secondary Connection: Here allow you to configure the secondary connection. DHCP and Static IP connection types are provided.
If **Static** is selected:
► **IP Address:** If Static IP is selected, configure the IP address of WAN port.
► **Netmask:** If Static IP is selected, configure the subnet mask of WAN port.
► **Gateway:** Optional. If Static IP is selected, configure the default gateway of WAN port.

If **DHCP** is selected:
► **Appoint Server IP:** Optional. If network has multiple DHCP servers, enter the IP address of your ISP's DHCP server.
►**Vendor Class Identifier:** Optional. This option (60) is used by DHCP clients to optionally identify the vendor type and configuration of a DHCP client.
► **Enterprise Code:** Optional.
► **Manufacture Name:** Optional.
► **Device Class:** Optional.
► **Device Type:** Optional.
► **Device Version:** Optional.

3.4.3 LAN Configuration

On this page, you can configure the parameters for LAN port.
Choose the menu **Network→LAN** to load the following page. There are three parts on this page.

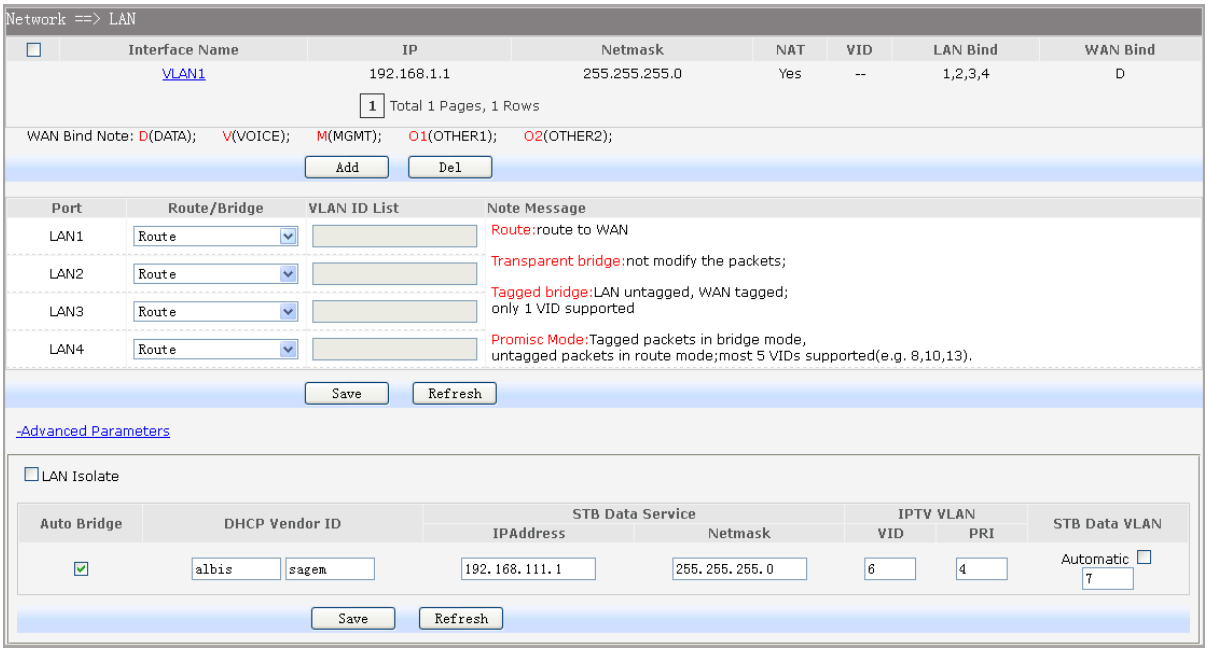


Figure 3-11 *LAN page*

1) Part 1: Configure LAN interfaces

Click the **Interface Name** of existent LAN interface you want to modify. If you want to delete the entry, select it and click the **Del** (the VLAN1 is default existed, can't be removed).
Click the **Add** button to add a new entry.

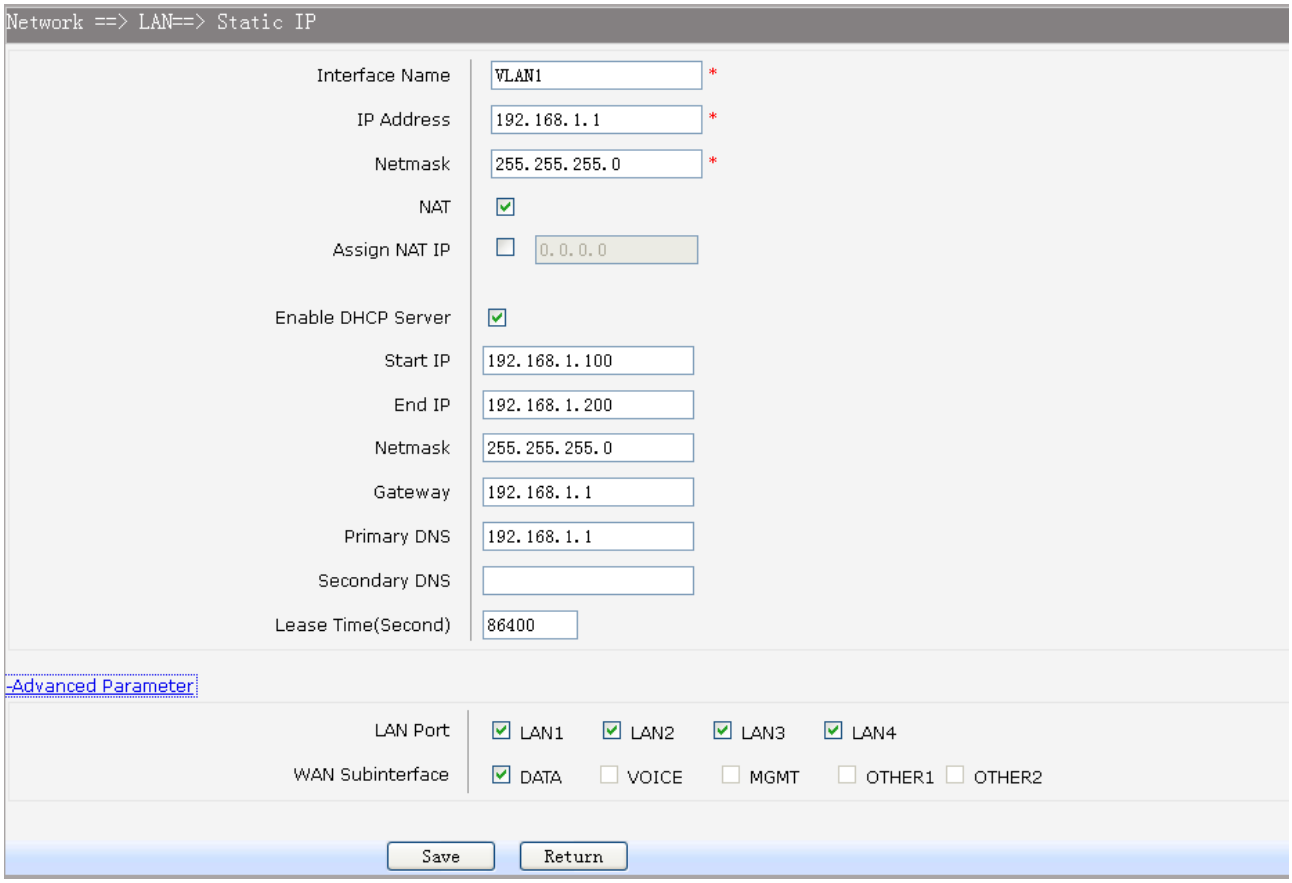


Figure 3-12 *Configure LAN Interface*

The following items are displayed on this part.

- **Interface Name:** Name of this LAN interface.
- **IP Address:** Enter the IP address for this LAN interface.
- **Netmask:** Enter the subnet mask for this LAN interface.
- **NAT:** Optional Enable or disable NAT for this LAN interface
- **Assign NAT IP:** Optional If NAT is selected. NAT IP address can be assigned.
- **Enable DHCP Server:** Enable or disable DHCP server on this LAN interface.
- **Start IP:** If **Enable DHCP Server** is selected, enter the Start IP address to define a range for the DHCP server to assign dynamic IP addresses. This address should be in the same IP address subnet with the IP address of this LAN interface.
- **End IP:** If **Enable DHCP Server** is selected, enter the End IP address to define a range for the DHCP server to assign dynamic IP addresses. This address should be in the same IP address subnet with the IP address of this LAN interface.

► **Netmask:** If **Enable DHCP Server** is selected, enter the **Netmask** to define a range for the DHCP server to assign dynamic IP addresses.
► **Gateway:** Optional .If **Enable DHCP Server** is selected, enter the Gateway address to be assigned.
► **Primary DNS:** Optional. If **Enable DHCP Server** is selected, enter the Primary DNS server address to be assigned.
► **Secondary DNS:** Optional. If **Enable DHCP Server** is selected, enter the Secondary DNS server address to be assigned.
► **Lease Time(Second):** If **Enable DHCP Server** is selected, specify the length of time the DHCP server will reserve the IP address for each client. After the IP address expired, the client will be automatically assigned a new one.

Advanced Parameter

► **LAN Port:** Select the physical LAN port to bind the IP address of this LAN interface.
► **WAN Subinterface:** Select the WAN subinterface which the packet from this LAN interface can be sending to.

2) Part 2: Configure LAN Route/Bridge mode

The following items are displayed on this part.
► **Port:** The physical LAN port name (LAN1~LAN4).
► **Route/Bridge:** Mode of this physical LAN port. The following four modes are provided:

Route: route to WAN
Transparent bridge: not modify the packets;
Tagged bridge: LAN untagged, WAN tagged; only 1 VID supported
Promisc Mode: Tagged packets in bridge mode, untagged packets in route mode; most 5 VIDs supported (e.g. 8, 10, 13).

► **VLAN ID List:** If Tagged bridge/Promisc Mode is selected, configure the VID/VIDs.

3) Part 3: Configure IPTV

Choose the menu **Network→LAN→Advanced Parameters** to load this page.
The following items are displayed on this part.
► **LAN Isolate:** Check the box to prohibit the access between LAN interfaces.
► **Auto Bridge:** Check the box to dynamically create IPTV bridge for STB.
► **DHCP Vendor ID:** Vendor class identifier List (DHCP 60 option), support at most two vendor IDs.
► **IPAddress:** IP address of interface for STB data service.
► **Netmask:** Subnet mask of interface for STB data service.
► **VID:** VID of IPTV VLAN.

► **PRI:** Priority level of IPTV VLAN.
► **Automatic:** Check the box to automatically detect the VID of STB data service.

3.4.4 WLAN

Wi-Fi is a **WLAN** (Wireless Local Area Network) technology. It provides short-range wireless high-speed data connections between mobile data devices (such as laptops, PDAs or phones) and nearby Wi-Fi access points (special hardware connected to a wired network).

3.4.4.1 Basic Settings

Choose the menu **Network→WLAN→Basic Settings** to load the following page.

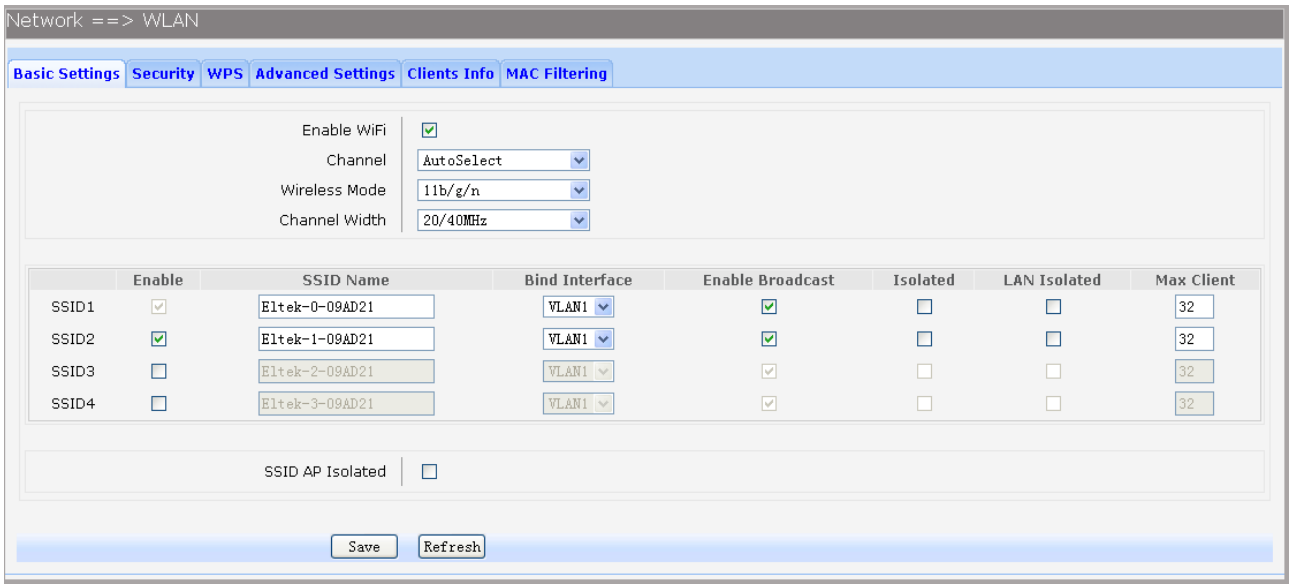


Figure 3-13 *Configure WIFI Basic Settings*

The following items are displayed on this screen:
► **Enable WiFi:** Enable or disable the WIFI AP function globally.
► **Channel:** This field determines which operating frequency will be used. The default channel is set to **AutoSelect**, so the AP will choose the best channel automatically. It is not necessary to change the wireless channel unless you notice interference problems with another nearby access point.
► **Wireless Mode:** Select the desired mode.
11b: Select if all of your wireless clients are 802.11b.
11g: Select if all of your wireless clients are 802.11g.
11n: Select only if all of your wireless clients are 802.11n.
11b/g: Select if you are using both 802.11b and 802.11g wireless clients.
11b/g/n: Select if you are using a mix of 802.11b, 11g and 11n wireless clients.
► **Channel Width:** Select any channel width from the drop-down list. The default setting is automatic, which can automatically adjust the channel width for your clients. If you choose to **11n** or **11b/g/n** Wireless

mode**,** this configuration is required. Two values of width are provided: **20MHz** and **20/40MHz**.

The **Service Set Identifier (SSID)** is used to identify an 802.11 (Wi-Fi) network and it's discovered by network sniffing/scanning. R3601-W2 provides up to four SSID.

► **Enable:** Enable or disable this entry of SSID. SSID1 can't be disabled.

►**SSID Name:** Enter the name of SSID. The name of SSID must be unique in all wireless networks nearby.

► **Bind Interface:** Select a network interface to be bridged to the SSID.

► **Enable Broadcast:** When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the device. If you select the **Enable Broadcast** checkbox, the device will broadcast its name (SSID) on the air.

► **Isolated:** Enable or disable isolate different clients from the same wireless station.

► **LAN Isolated:** Enable or disable isolation between the LAN and SSID.

► **Max Client:** Enter the maximum number of clients allowed to connect to the SSID.

► **SSID AP Isolated:** This function can isolate wireless stations on your network from each other. Wireless devices will be able to communicate with the Router but not with each other. To use this function, check this box. AP Isolation is disabled by default.

3.4.4.2 Security

Choose the menu **Network→WLAN→Security** to load the Security page. There are nine wireless security modes supported by the device: Open WEP, Shared WEP, WEP Auto, WPA-PSK, WPA2-PSK, WPAPSK/WPA2PSK, WPA, WPA2 and WPAWPA2.

If you do not want to use wireless security, select **Disable**, but it's strongly recommended to choose one of the following modes to enable security.

1) WPA-PSK, WPA2-PSK, WPAPSK/WPA2PSK: It's the WPA/WPA2 authentication type based on pre-shared passphrase. Choose one of these types, the following page is loaded.

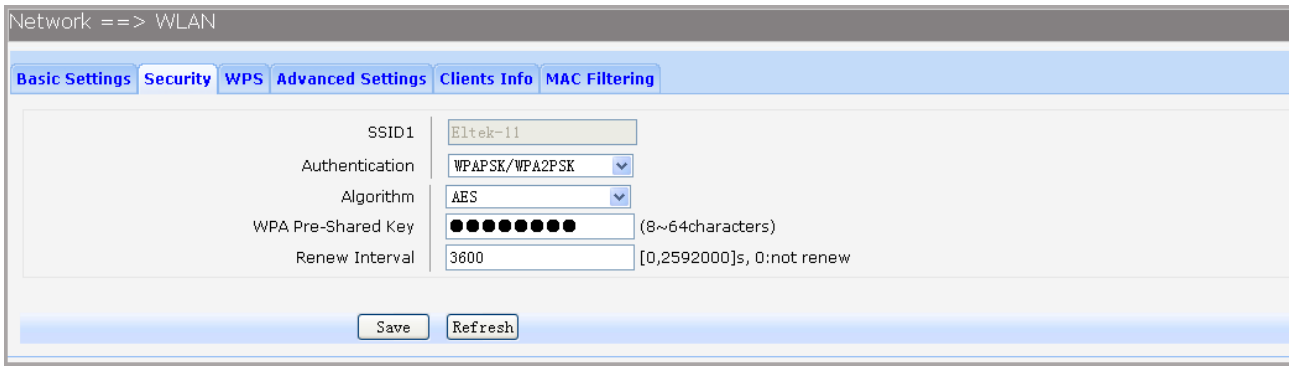


Figure 3-14 *Configure WIFI PSK Security*

The following items are displayed on this screen:

► **SSID:** The SSID enabled in **WLAN→Basic Settings** page.Read only

► **Authentication:** The authentication type selected: WPA-PSK, WPA2-PSK, WPAPSK/WPA2PSK.

► **Algorithm:** When WPA2-PSK or WPAPSK/WPA2PSK is set as the Authentication Type, you can select either **TKIP**, or **AES** or **TKIP/AES** as Encryption. When WPA-PSK is set as the Authentication Type, you can select either TKIP or AES as Encryption.

► **WPA Pre-Shared Key:** You can enter ASCII characters between 8 and 64 characters.

► **Renew Interval:** Specify the group key update interval in seconds. Enter 0 to disable the update.

2) Open WEP, Shared WEP, WEP Auto: It is based on the IEEE 802.11 standard. Choose one of these types, the following page is loaded.

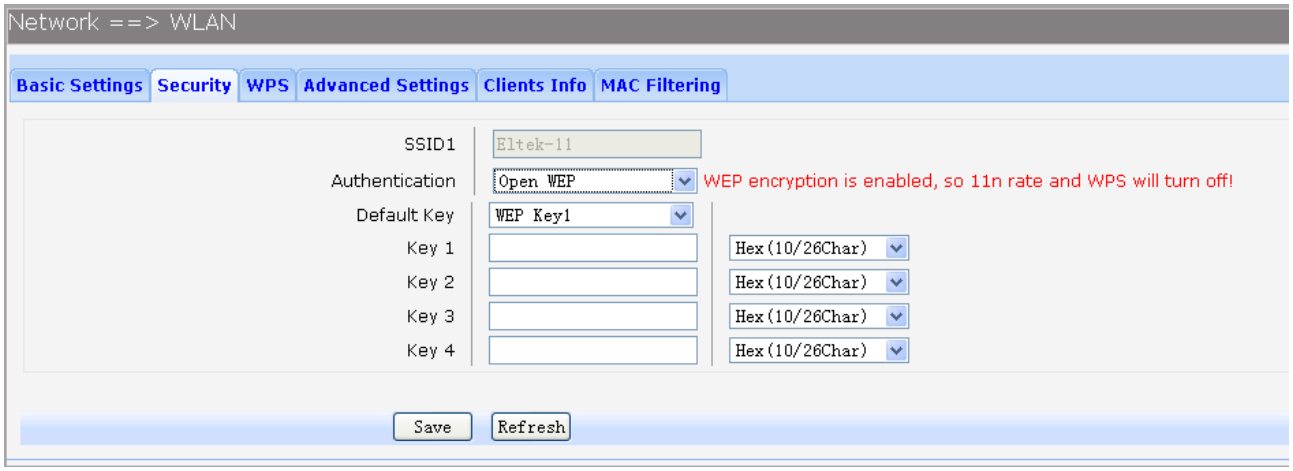


Figure 3-15 *Configure WIFI WEP Security*

The following items are displayed on this screen:

► **SSID:** The SSID enabled in **WLAN→Basic Settings** page.Read only

► **Authentication:** The authentication type selected: Open WEP, Shared WEP, WEP Auto.

► **Default Key:** Select the default WEP key configure below.

► **Key:** Provide up to four key. You can select the key type HEX(10/26 char) or ASCII(5/13 char)) for encryption and then enter the key. HEX(10/26 char) and ASCII(5/13 char) formats are provided.

Hex(10/26 char): format stands for any combination of hexadecimal digits (0-9, a-f, A-F) in the specified length.

ASCII(5/13 char): format stands for any combination of keyboard characters in the specified length.

3) WPA, WPA2, WPA/WPA2: It's based on Radius Server. Choose one of these types, the following page is loaded.

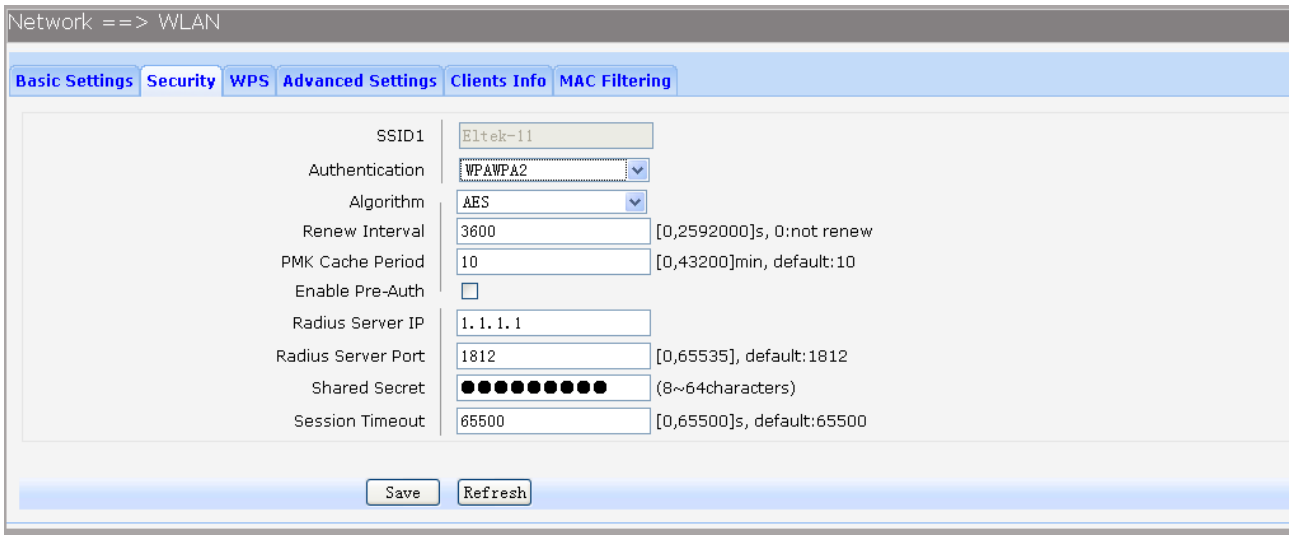


Figure 3-16 *Configure WIFI WPA Security*

The following items are displayed on this screen:

► **SSID:** The SSID enabled in **WLAN→Basic Settings** page.Read only

► **Authentication:** The authentication type selected: WPA, WPA2, WPA/WPA2.

► **Algorithm:** You can select either **TKIP**, or **AES** or **TKIP/AES**.

► **Renew Interval:** Specify the update interval in seconds. Enter 0 to disable the update.

► **PMK Cache Period:** Pairwise Master Key, PMK. Set WPA2 PMKID cache timeout period, after time out, the cached key will be deleted.This parameter is valid when you select WPA2 or WPA/WPA2.

► **Enable Pre-Auth:** This is used to speed up roaming before pre-authenticating IEEE 802.1X/EAP part of the full RSN authentication and key handshake before actually associating with a new AP. Default is disable. This parameter is valid when you select WPA2 or WPA/WPA2.

► **Rasius Server IP:** Enter the IP address of the Radius Server.

► **Rasius Server Port:** Enter the port that radius service used.

► **Shared Seret:** Enter the password for the Radius Server.

► **Session Timeout:** Specify the session timeout in seconds, Enter 0 to not limit the timeout.

3.4.4.3 WPS

Wi-Fi Protected Setup (WPS; originally Wi-Fi Simple Config) is a computing standard that attempts to allow easy establishment of a secure wireless home network.WPS currently supports two methods: Personal Information Number (PIN) and Push Button Configuration (PBC).The difference between the two methods is much pretty described in their names.

The **PIN** method involves entering a client device PIN, obtained either from a client application GUI or a label on a device, into the appropriate admin screen on a Registrar device.

The **PBC** method requires the user to push buttons on the Registrar and Client devices within a two-minute period to connect them. (The two-minute period also applies to the PIN method.) The buttons can be physical, as they typically are on AP / router devices or virtual, as is normal on client devices.

Choose the menu **Network→WLAN→WPS** to load the WPS page.

1) PIN Mode

If PIN mode is selected, the following page is loaded.

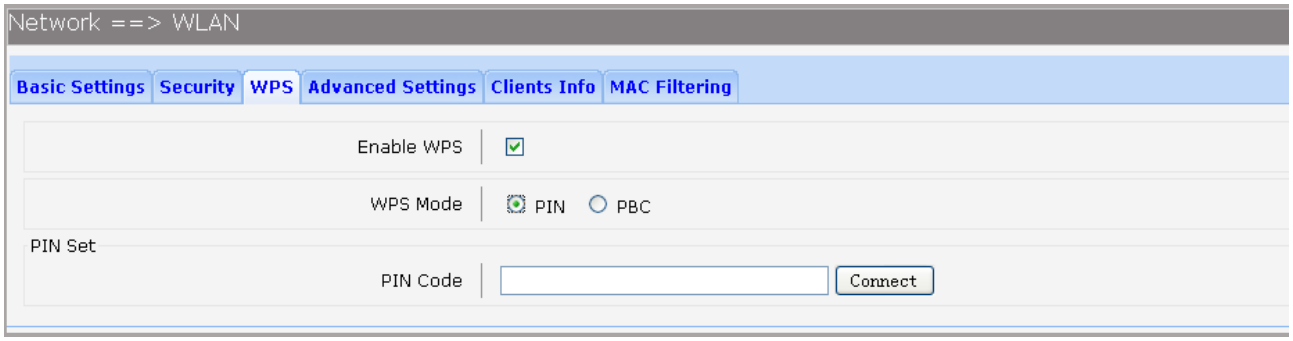


Figure 3-17 *Configure WIFI WPS-PIN*

The following items are displayed on this screen:

► **Enable WPS:** Enable or disable the WIFI WPS function globally.

► **WPS Mode:** Choose the WPS mode: PIN.

► **PIN Code:** If PIN mode is chosen, enter the 8 digit PIN code, and then click Connect.

2) PBC Mode

If PBC mode is selected, the following page is loaded.

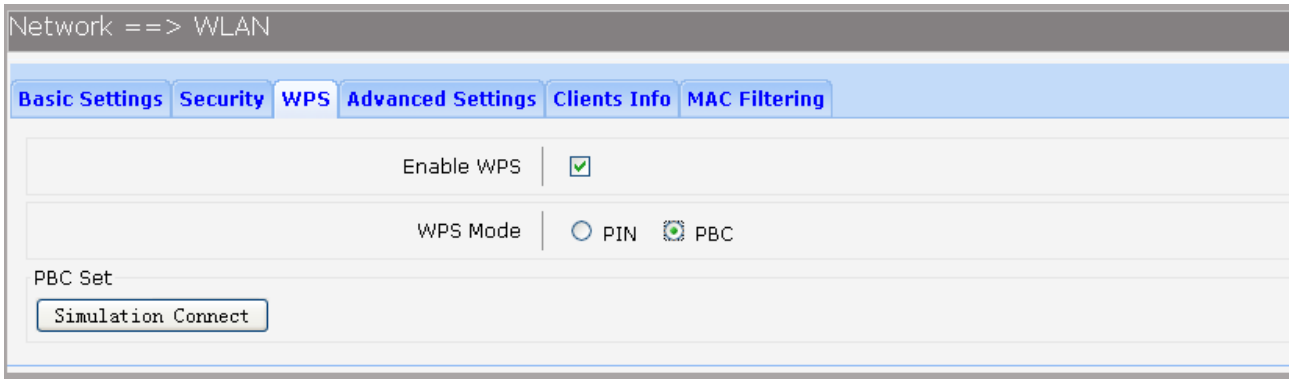


Figure 3-18 *Configure WIFI WPS-PBC*

The following items are displayed on this screen:

► **Enable WPS:** Enable or disable the WIFI WPS function globally.

► **WPS Mode:** Choose the WPS mode: PBC.

► **PBC Set:** If PBC mode is chosen, then click **Simulation Connect**.

3.4.4.4 Advanced Settings

Choose the menu **Network→WLAN→Advanced Settings** to load the following page.

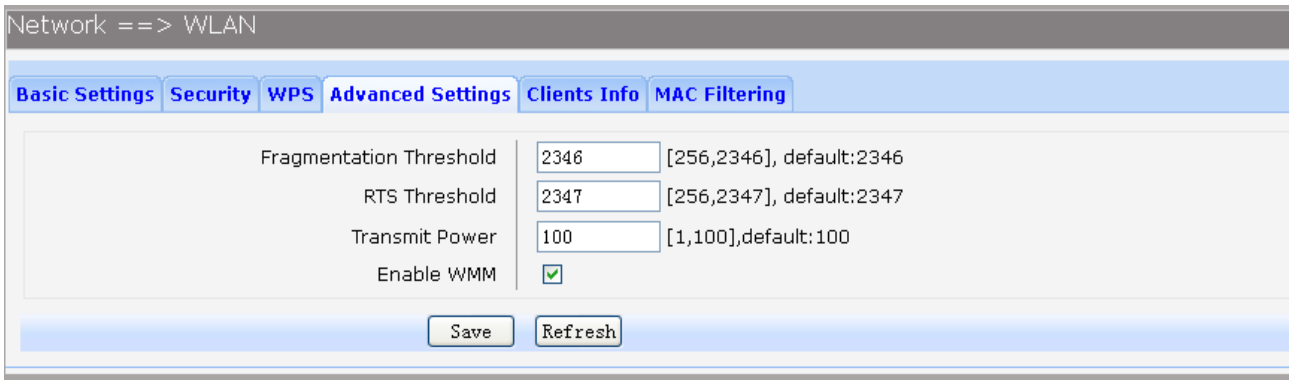


Figure 3-19 *Configure WIFI Advanced Settings*

The following items are displayed on this screen:

► **Fragmentation Threshold:** This value is the maximum size determining whether packets will be fragmented. Setting the Fragmentation Threshold too low may result in poor network performance since excessive packets. 2346 is the default setting and is recommended.

► **RTS Threshold:** Here you can specify the RTS (Request to Send) Threshold. If the packet is larger than the specified RTS Threshold size, the device will send RTS frames to a particular receiving station and negotiate the sending of a data frame. The default value is 2347.

► **Transmit Power:** Here you can specify the transmit power of device. 100 is the default setting and is recommended.

► **Enable WMM:** Enable or disable the WIFI WMM function globally. WMM function can guarantee the packets with high-priority messages, being transmitted preferentially. It is strongly recommended enabled.

3.4.4.5 Clients Info

Choose the menu **Network→WLAN→Clients Info** to load the following page.

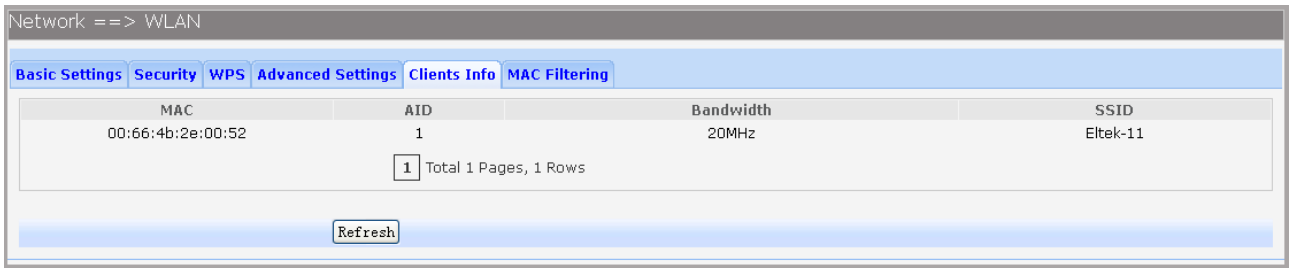


Figure 3-20 *View Wifi Clients Info*

This page shows all connected WIFI client information, read only.
The following items are displayed on this screen:

- **MAC:** The MAC address of this client entry.
- **AID:** The AID(Association ID) field is a value assigned by an AP during association that represents the 16-bit ID of a STA.
- **Bandwidth:** Band width this client entry used.
- **SSID:** The SSID this client entry used when connecting WIFI.

3.4.4.6 MAC Filtering

You can control the wireless access by configuring the Wireless MAC Filtering function.

Choose the menu **Network→WLAN→MAC Filtering** to load the following page.

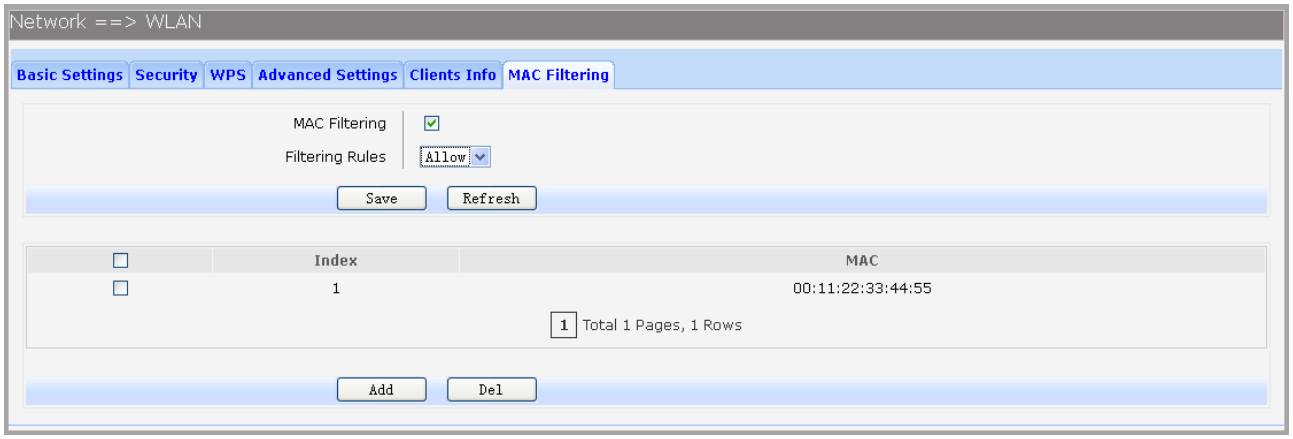


Figure 3-21 *View Wifi MAC Filtering*

The following items are displayed on this screen:

- **MAC Filtering:** Enable or disable the Wifi MAC filtering function globally.
- **Filtering Rules:** Two MAC filtering rules are provided:
  Allow: allow the stations specified by entries in the list to access.
  Deny: deny the stations specified by entries in the list to access.

To delete Wireless MAC Address filtering entries, select the entries and click the **Del** button. To Add a Wireless MAC Address filtering entry, click the **Add** button.

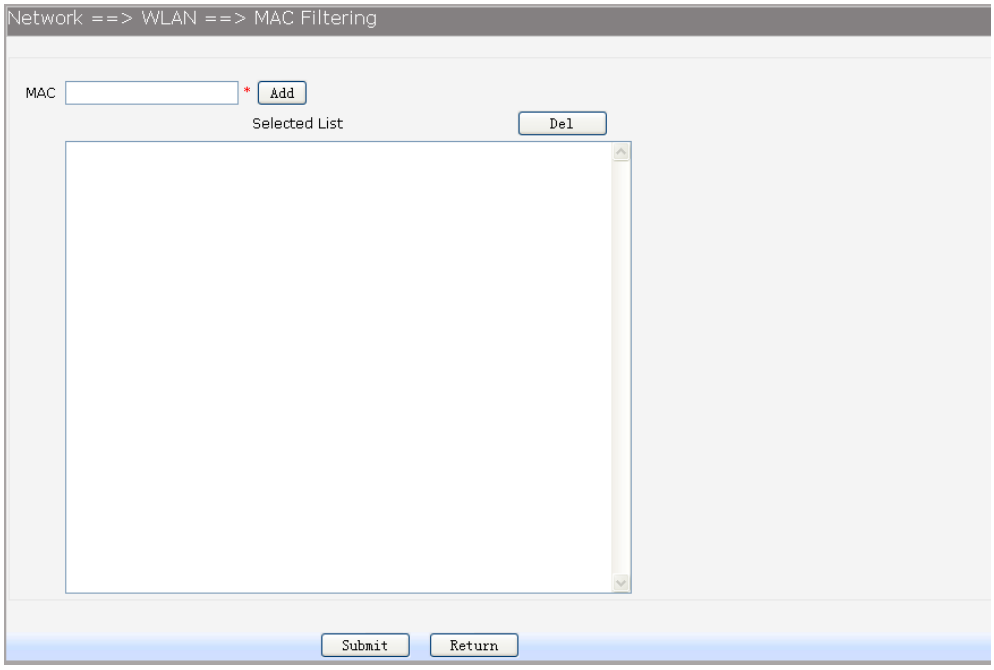


Figure 3-22 *Add WIFI MAC Filtering Entry*

Enter the appropriate MAC Address into the **MAC** field. The format of the MAC Address is XX:XX:XX:XX:XX:XX (X is any hexadecimal digit). Click **Add** button to add MAC address to the **Selected List,** click **Del** button to delete the selected MAC address in the **Selected List.**

3.4.5 3G Modem

Typically, 3G Modem WAN is used as uplink port as a backup. When inserting 3G Modem into USB port, the system recognized the SIM card and charges no problem. After dialing successful, 3G Modem will serve as a backup uplink usage.

1) Basic Settings

Choose the menu **Network→3G Modem** to load the following page.

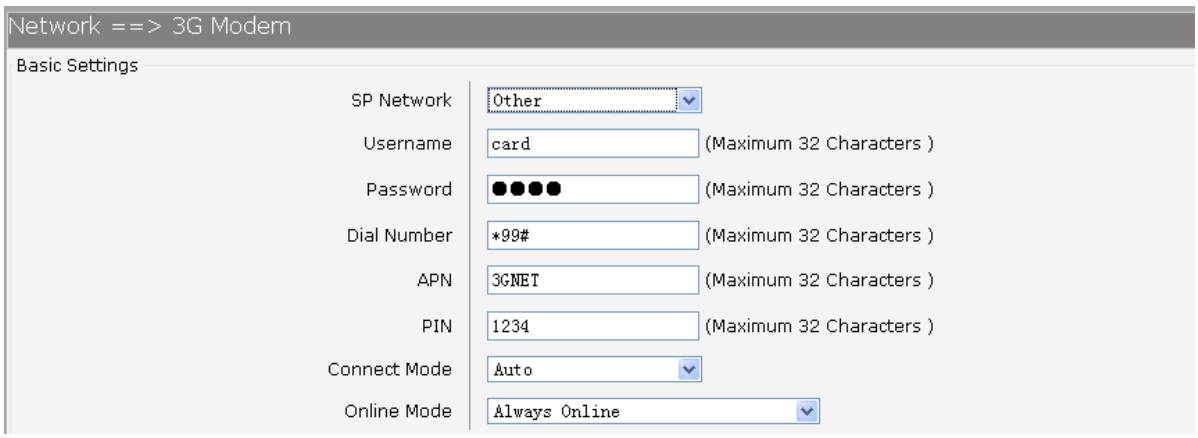


Figure 3-23 *Configure 3G Modem-Basic Settings*

The following items are displayed on this screen:

► **SP Network:** **Other** or **Swisscom.** If it is not the target user, you need to select the other.

► **Connect Mode:** **Manual** or **Auto**. The default is Auto.

► **Online Mode:** **always online** and **disconnect after idle interval**. The default is "always online". The default idle interval is 60 seconds.

If **Other** is selected, the following parameters appear:

► **Username:** 3G network dial-up username.

► **Password:** 3G network dial-up password.

► **Dial Number:** 3G network dial numbers.

► **APN:** 3G network access APN.

► **PIN:** 3G networks need to use dial-up PIN code, if not, can be set to empty.

2) Advanced Parameters

Choose the menu **Network→3G Modem→Advanced Parameters** to load the following page.

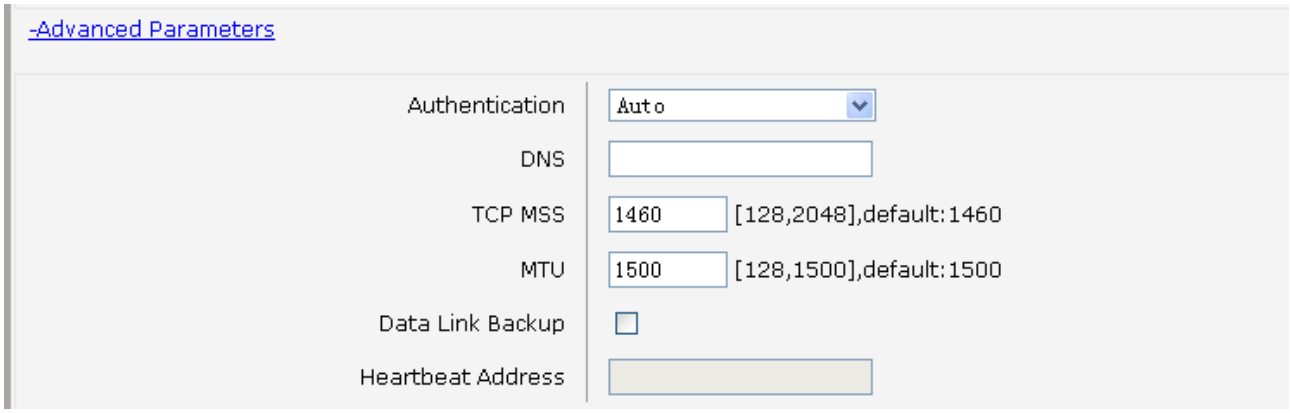


Figure 3-24 *Configure 3G Modem-Advanced Parameters*

The following items are displayed on this screen:

► **Authentication:** 3G dial-up authentication, **CHAP**,**PAP**,**Auto** are provided. Default is **Auto**.

► **DNS:** The default is obtained from the dial-up network devices automatically. You can also configure DNS manually.

► **TCP MSS:** Configure TCP maximum segment, we recommend using the default value.

► **MTU:** Configure 3G link MTU, the default value is recommended

► **Data Link Backup:** When enabled, if WAN uplink port is disconnected, the routing switches to the 3G link.

► **Heartbeat Address:** Set the heartbeat detecting address of the link, the default configuration is not required.

3) Status

Figure 3-25 *Configure 3G Modem-Status*

The following items are displayed on this screen:

- **Device Status:** Indicates whether to insert 3G module.
- **SIM Card Status:** Indicates whether to insert 3G modem in the SIM card, the ready state means the SIM card is detected.
- **Product Name:** 3G modem Product Type.
- **Manufacturer Name:** 3G modem vendor name.
- **SP Name:** 3G modem service provider name.
- **Signal Quality:** Signal quality of 3G Modem, up to 31.
- **Connection Status:** Connected or disconnected.

3.4.6 Port Management

3.4.6.1 Port Mirror

Port Mirror, the packets obtaining technology, functions to forward copies of packets from one/multiple ports (mirrored port) to a specific port (mirroring port). Usually, the mirroring port is connected to a data diagnose device, which is used to analyze the mirrored packets for monitoring and troubleshooting the network.

Choose the menu **Network→Port** Management→**Port Mirror** to load the following page.

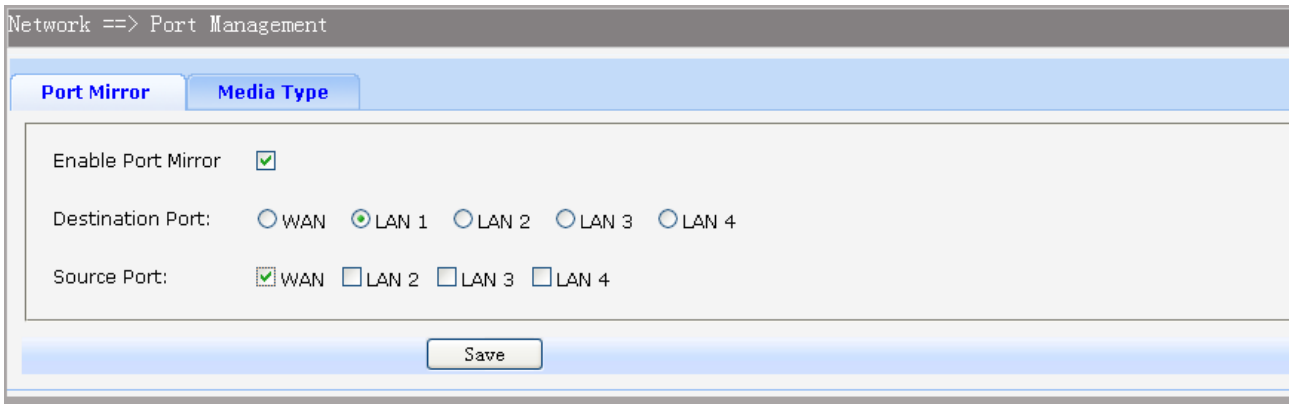


Figure 3-26 *Port Mirror*

The following items are displayed on this screen:

► **Enable Port Mirror:** Enable or disable port mirror.

► **Destination Port:** The duplicate of packets from **Source Port** will send to this destination port.

► **Source Port:** All packets received from **Source Port** will be duplicated and the duplicate will be send to **Destination Port**.

3.4.6.2 Media Type

Choose the menu **Network→Port** Management→**Media Type** to load the following page.

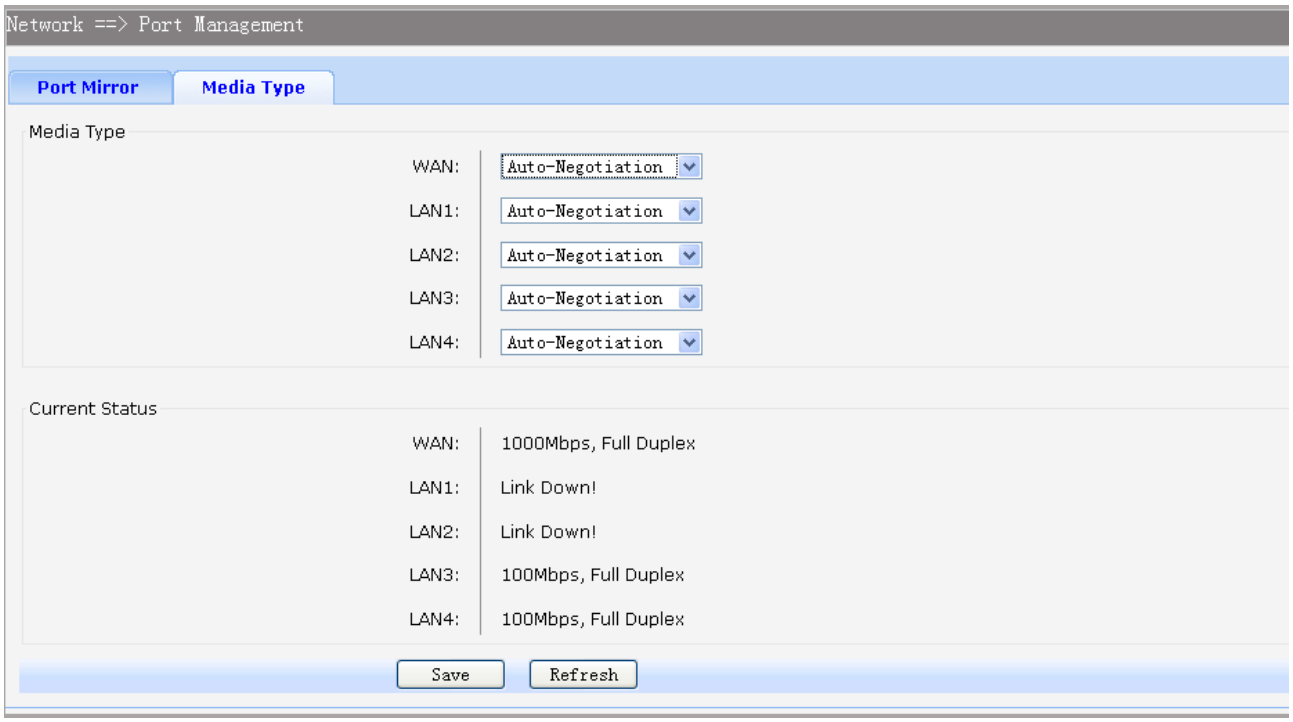


Figure 3-27 *Media Type*

The following items are displayed on this screen:

► **Media Type:** provides the following six modes to all physical ports: 10M Half Duplex, 10M Full Duplex, 100M Half Duplex, 100M Full Duplex, 1000M Full Duplex, Auto-Negotiation.

► **Current Status:** Current link status of all physical ports. Read only.

3.4.7 IPv6 Configuration

Choose the menu **Network→IPv6** to load the following page.

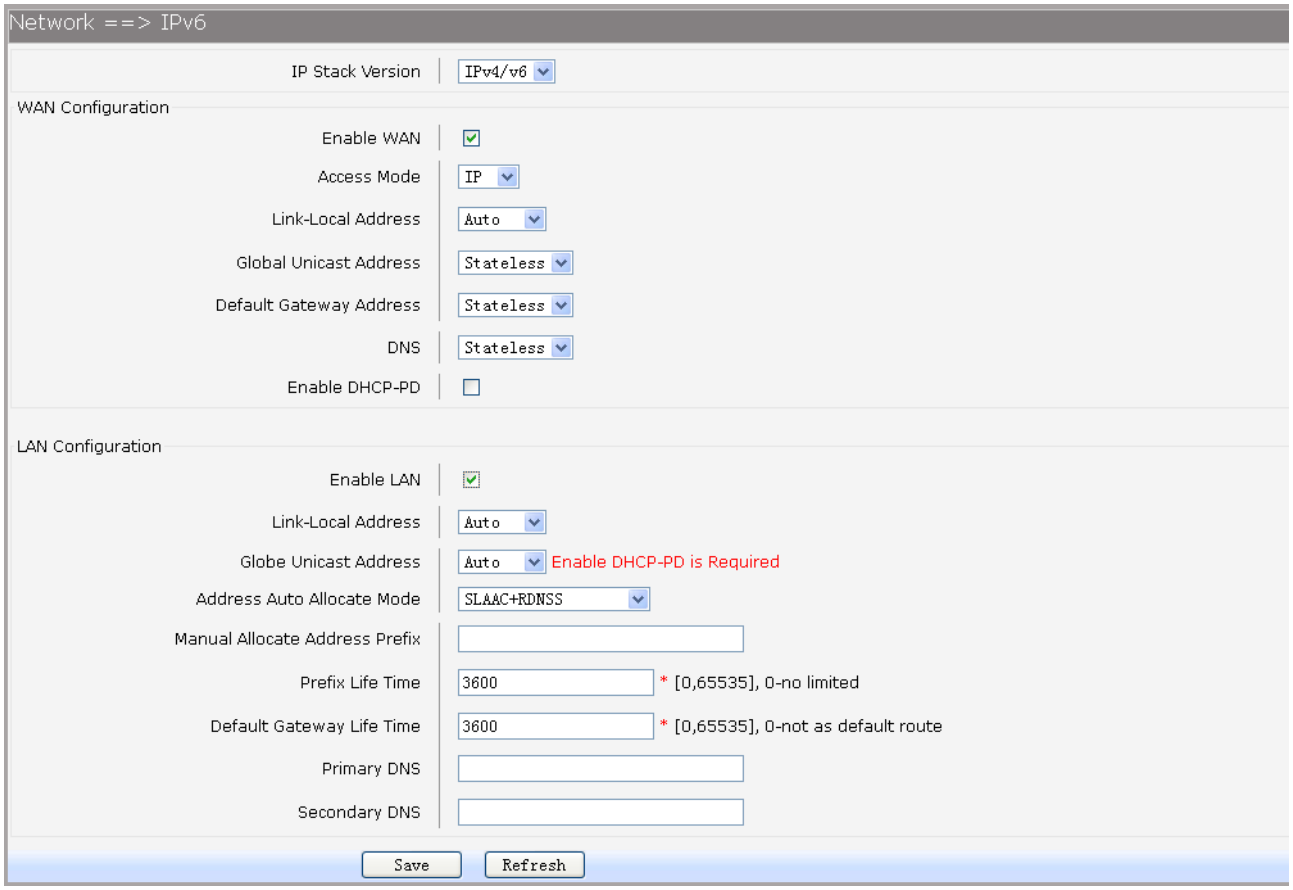


Figure 3-28 *Configure IPv6*

The following items are displayed on this screen:

► **IP Stack Version:** Choose the IP stack version to use. Provides the following three types:

IPv4,**IPv6**,**IPv4/v6**.

WAN Configuration

► **Enable WAN:** If IPv6 or IPv4/v6 is chosen, select this to enable IPv6 stack on WAN.

► **Access Mode:** Select access mode of WAN: **IP** or **PPP**.

► **Link-Local Address:** Select type of Link-Local address: **Auto** or **Manual**. If Manual is selected, you should specify address manually.

► **Global Unicast Address:** **Stateless,Manual,DHCPv6**. If Manual is selected, you should specify address manually.

► **Default Gateway Address: Stateless,Manual**. If Manual is selected, you should specify address manually.

► **DNS:** **Stateless,Manual,DHCPv6**. If Manual is selected, you should specify DNS manually.

► **Enable DHCP-PD:** Whether to enable **DHCP-PD**(prefix delegation) on WAN.

LAN Configuration

► **Enable LAN:** If IPv6 or IPv4/v6 is choseN, select this to enable IPv6 stack on LAN.

► **Link-Local Address:** Select type of Link-Local address: **Auto** or **Manual**. If Manual is selected, you should specify address manually.

► **Global Unicast Address:** **Manual,Auto**. If Manual is selected, you should specify address manually.

► **Address Auto Allocate Mode: SLAAC+RDNSS**(Recursive DNS Server)
SLAAC(Stateless address autoconfiguration)**+DHCPv6**
DHCPv6

► **Manual Allocate Address Prefix:** Configure the manual allocate address prefix.

► **Prefix Life Time:** Enter the life time of prefix.

► **Default Gateway Life Time:** Enter the life time of default gateway.

► **Primary DNS:** Enter the primary DNS address.

► **Secondary DNS:** Enter the secondary DNS address.

3.5 Data Service

3.5.1 Status

The Status page shows the data services information, all information is read only.

3.5.1.1 Service State

The Service State page show all switch status of data services.

Choose the menu **Data Service→Status→Service State** to load the following page.

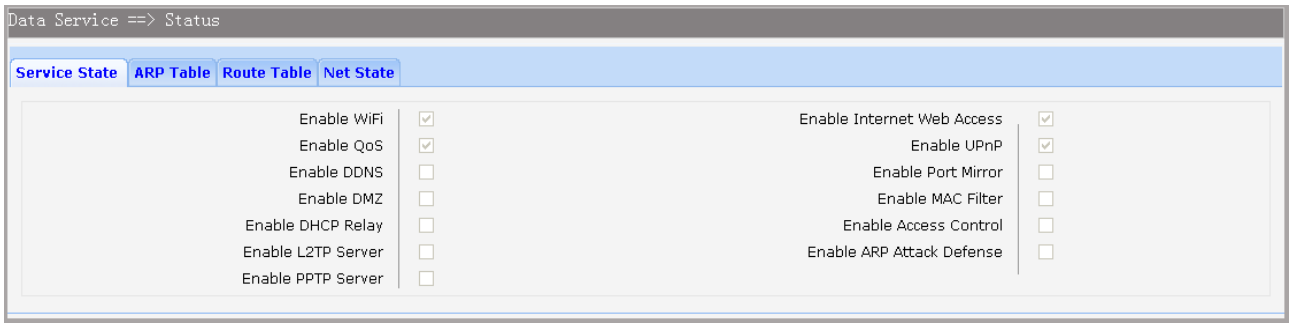


Figure 3-29 *Service State*

3.5.1.2 ARP Table

This page displays the ARP List;

Choose the menu **Data Service→Status→ARP** Table to load the following page.

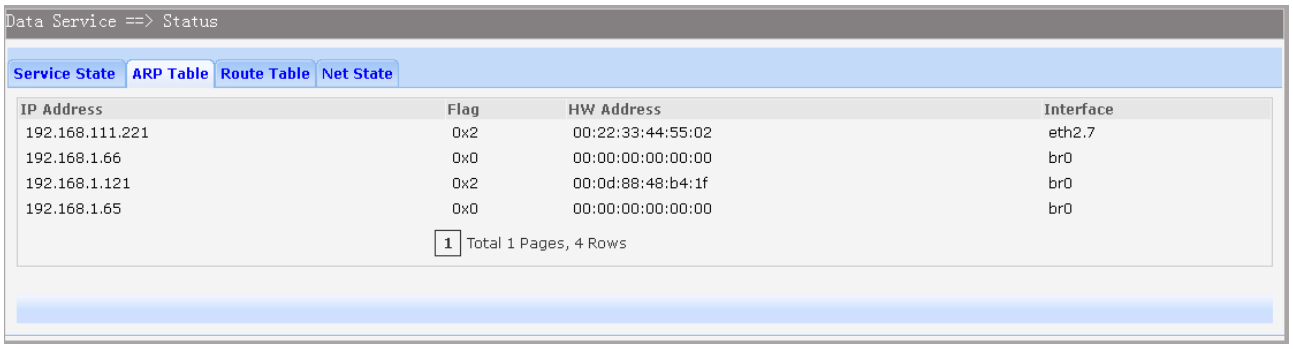


Figure 3-30 *ARP Table*

3.5.1.3 Route Table

Choose the menu **Data Service→Status→Route Table** to load the following page.

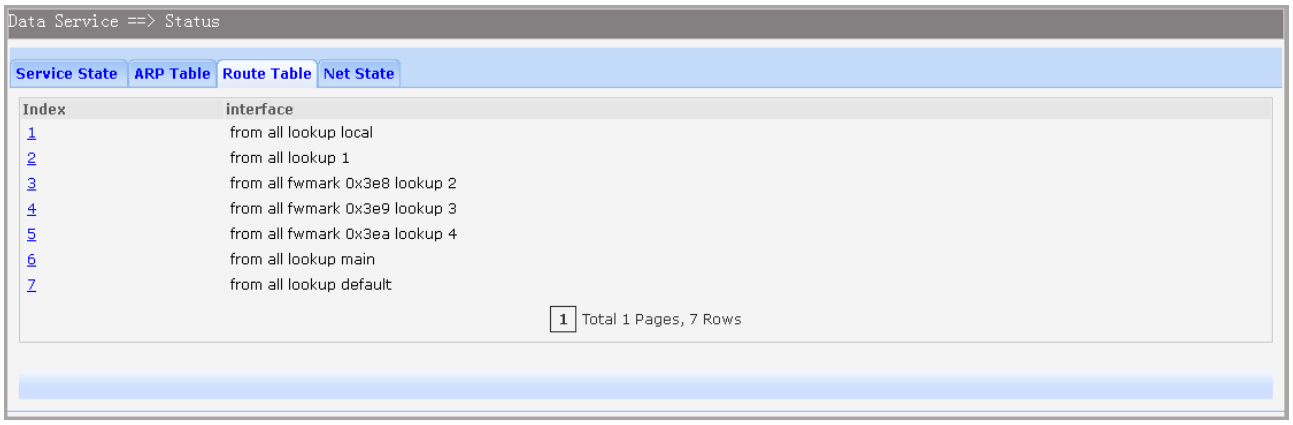


Figure 3-31 *Route Table*

3.5.1.4 Net State

Choose the menu **Data Service→Status→Net State** to load the following page.

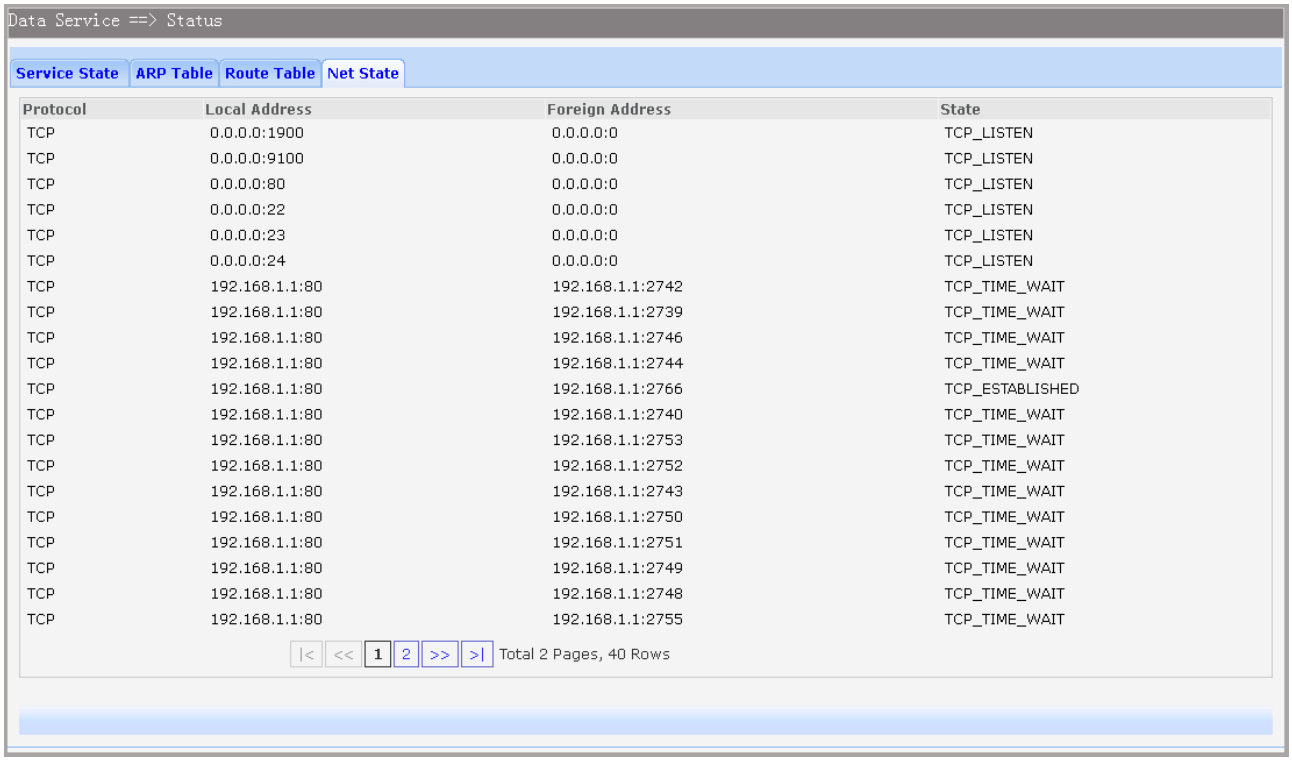


Figure 3-32 *Net State*

3.5.2 DHCP Server

3.5.2.1 Static Address Assign

Choose the menu **Data Service→DHCP Server→Static Address Assign**, and then you can view and add address which is assigned for clients. When you specify a static IP address for a client on the LAN, that client will always receive the same IP address each time when it accesses the DHCP server. The Reserved IP addresses should be assigned to the devices that require permanent IP settings.

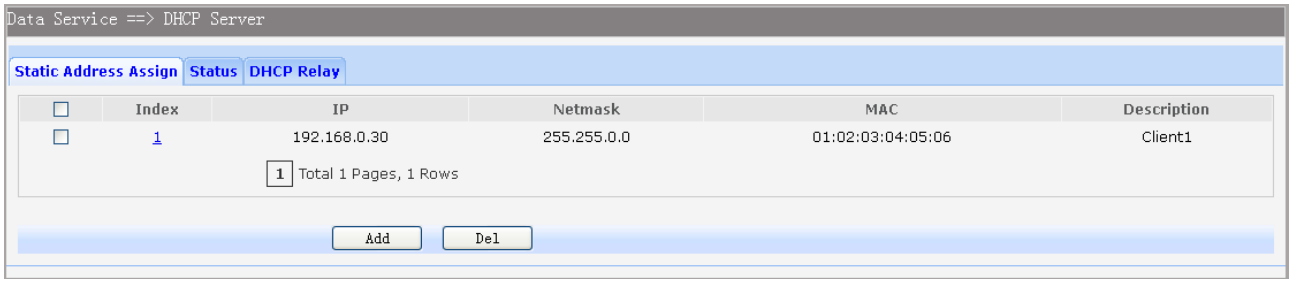


Figure 3-33 *View Static Address Assign Configuration*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

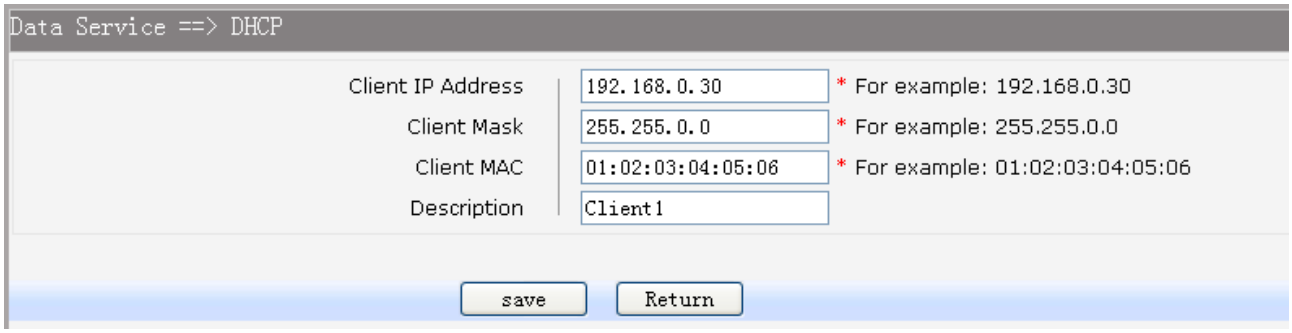


Figure 3-34 *Add or Modify An Static Address Assign Entry*

The following items are displayed on this screen:

- **Client IP Addres:** The IP address reserved.
- **Client Mask:** The subnet mask of IP address reserved.
- **Client MAC:** The MAC address you want to reserve IP address.
- **Description:** The description of the entry to add or modify.

3.5.2.2 Status

Choose the menu **Data Service→DHCP Server→Status**, and then you can view the information about the clients attached to the DHCP server.

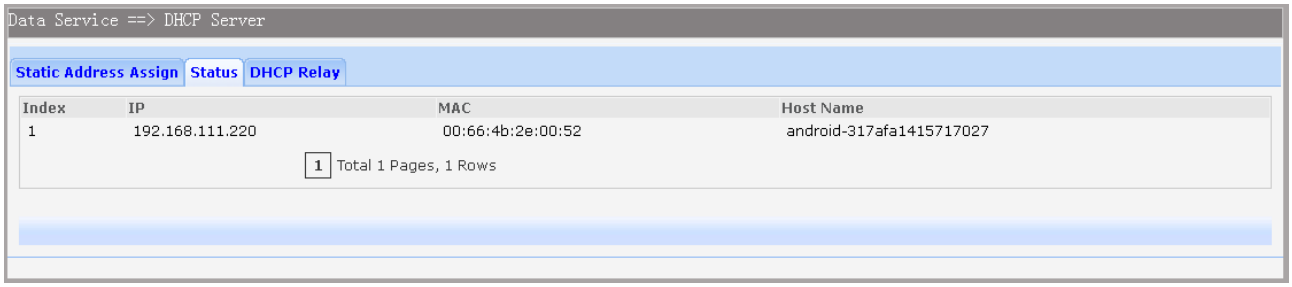


Figure 3-35 *DHCP Client Status*

3.5.2.3 DHCP Relay

A DHCP relay agent is any host that forwards DHCP packets between clients and servers. Relay agents are used to forward requests and replies between clients and servers when they are not on the same physical subnet. Relay agent forwarding is distinct from the normal forwarding of an IP router, where IP datagrams are switched between networks somewhat transparently. By contrast, relay agents receive DHCP messages and then generate a new DHCP message to send on another interface. It listens for client requests and adds vital configuration data, such as the client's link information, which is needed by the server to allocate the address for the client. When the DHCP server responds, the DHCP relay agent forwards the reply back to the DHCP client.

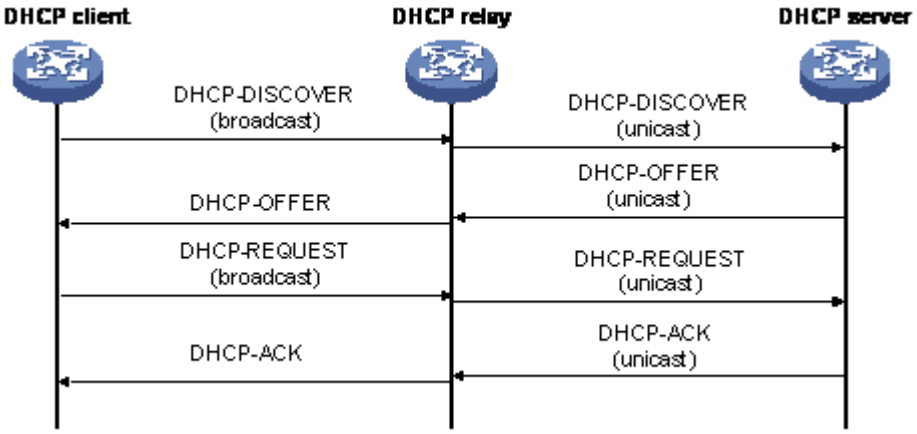


Figure 3-36 *DHCP Relay Overview*

Choose the menu **Data Service→DHCP Server→DHCP Relay** to load the following page.

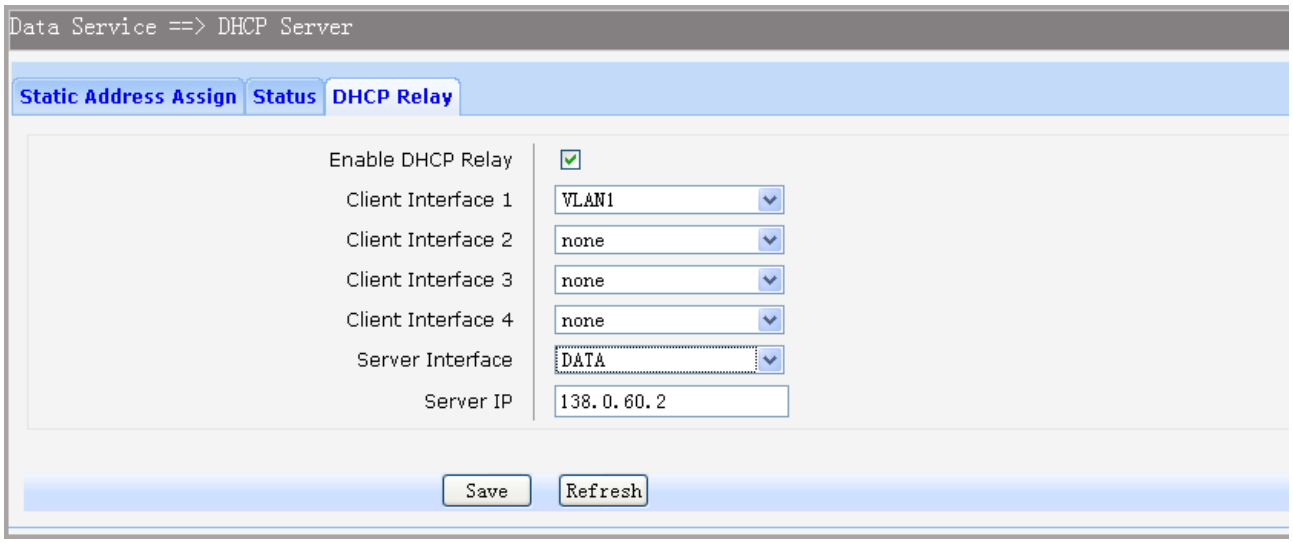


Figure 3-37 *Configure DHCP Relay*

The following items are displayed on this screen:

► **Enable DHCP Relay:** Enable or disable DHCP Relay.

► **Client Interface:** The interface to listen for DHCP client requests. Up to four interfaces can be selected.

► **Server Interface:** Choose the interface which connects DHCP server.

► **Server IP:** Configure the DHCP server IP address.

3.5.3 NAT Config

Network Address Translation (NAT) is a network protocol used in IPv4 networks that allows multiple devices to connect a network protocol using the same public IPv4 address. NAT was originally designed in an attempt to help conserve IPv4 addresses. NAT modifies the IP address information in IPv4 headers while in transit across a traffic routing device.

3.5.3.1 Basic Settings

Choose the menu **Data Service→NAT Config→Basic Settings** to load the following page.

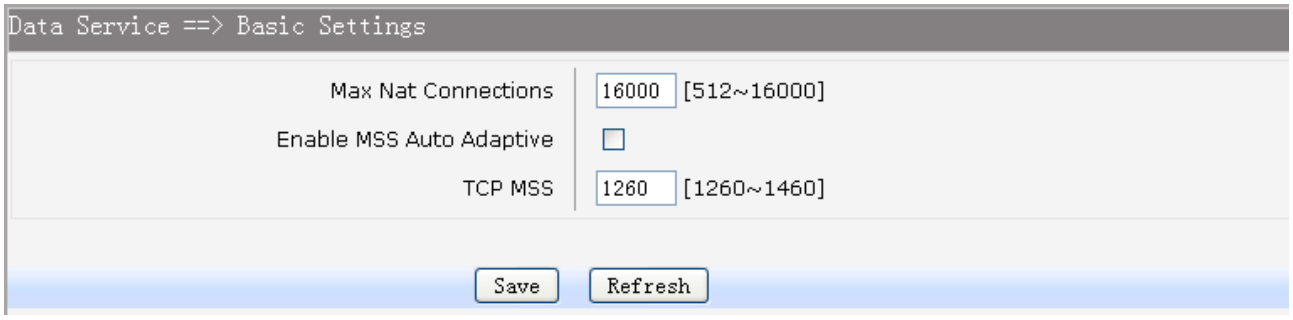


Figure 3-38 *Basic Settings*

The following items are displayed on this screen:

► **Max Nat Connections:** Specify the maximum number of NAT connections.

► **Enable MSS Auto Adaptive:** Enable or disable auto adaptive the value of MSS(Maximum Segment Size).

► **TCP MSS:** If **Enable MSS Auto Adaptive** is not selected, configure this to specify the maximum segment size of the TCP protocol.

3.5.3.2 PAT Settings

Several internal addresses can be NATed to only one or a few external addresses by using a feature called overload, which is also referred to as PAT. PAT is a subset of NAT functionality, where it maps several internal addresses to a single external address. PAT statically uses unique port numbers on a single outside IP address to distinguish between the various translations.

Choose the menu **Data Service→NAT Config→PAT Settings** to load the following page.

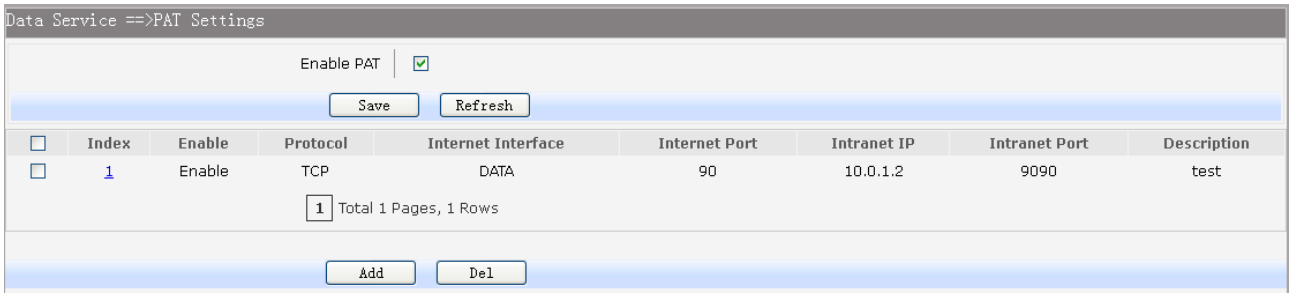


Figure 3-39 *View PAT Settings*

The following items are displayed on this screen:

► **Enable PAT:** Enable or disable PAT globally.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

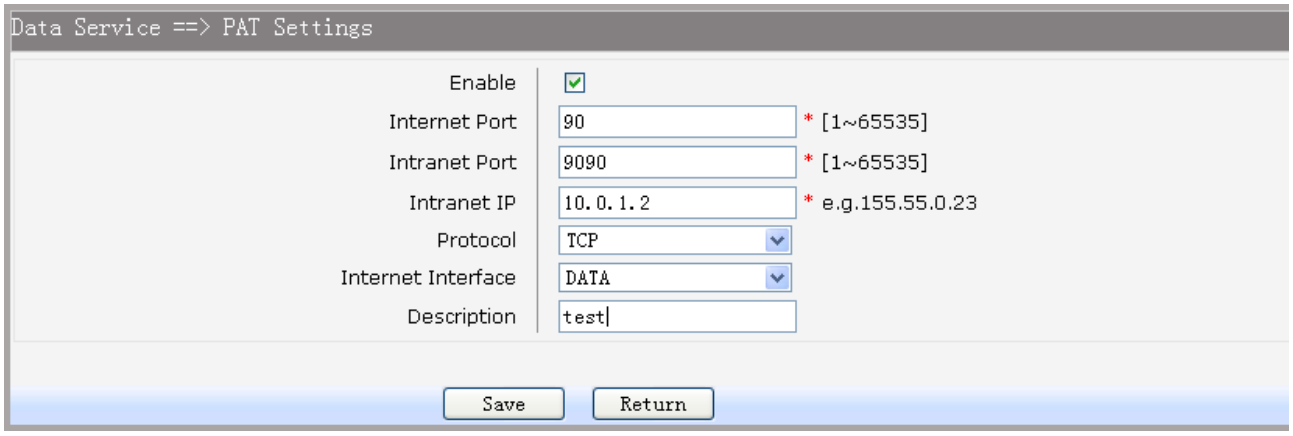


Figure 3-40 *Add or Modify PAT Entry*

The following items are displayed on this screen:

► **Enable:** Enable or disable this PAT entry.

► **Internet Port:** Enter the service port provided for accessing external network. All the requests from internet to this service port will be redirected to the specified server in local network.

► **Intranet Port:** Specify the service port of the LAN host as virtual server.

► **Intranet IP:** Enter the IP address of the specified internal server for the entry. All the requests from the internet to the specified LAN port will be redirected to this host.

► **Protocol:** Specify the protocol used for the entry.

► **Internet Interface:** Specify the interface to receive requests from the internet for the entry.

► **Description:** Enter a name for Virtual Server entry.

3.5.3.3 DMZ Settings

In computer security, a DMZ or Demilitarized Zone (sometimes referred to as a perimeter network) is a physical or logical network that contains and exposes an organization's external-facing services to a larger and insecure network, usually the Internet. The purpose of a DMZ is to add an additional layer of security to an organization's local area network (LAN); an external attacker only has direct access to equipment in the DMZ, rather than any other part of the network.
Choose the menu **Data Service→NAT Config→DMZ Settings** to load the following page.

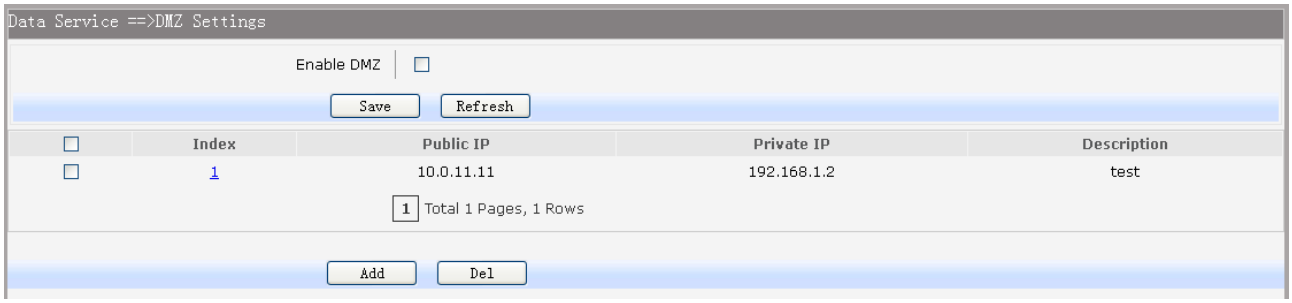


Figure 3-41 *View DMZ Settings*

The following items are displayed on this screen:
► **Enable DMZ:** Enable or disable DMZ globally.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

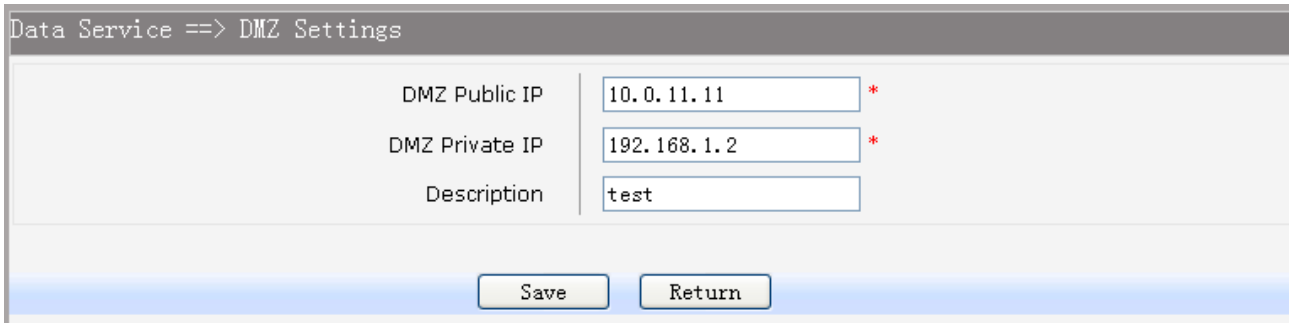


Figure 3-42 *Add or Modify DMZ Entry*

The following items are displayed on this screen:
► **DMZ Public IP:** The public IP address for this DMZ entry.
► **DMZ Private IP:** The private IP address for this DMZ entry.
► **Description:** Enter a description string for this DMZ entry

3.5.3.4 ALG Settings

Application Layer Gateway (ALG) allows customized Network Address Translation (NAT) traversal filters to be plugged into the gateway to support address and port translation for certain application layer "control/data" protocols such as FTP, H.323, PPTP, etc.

Choose the menu **Data Service→NAT Config→ALG Settings** to load the following page.

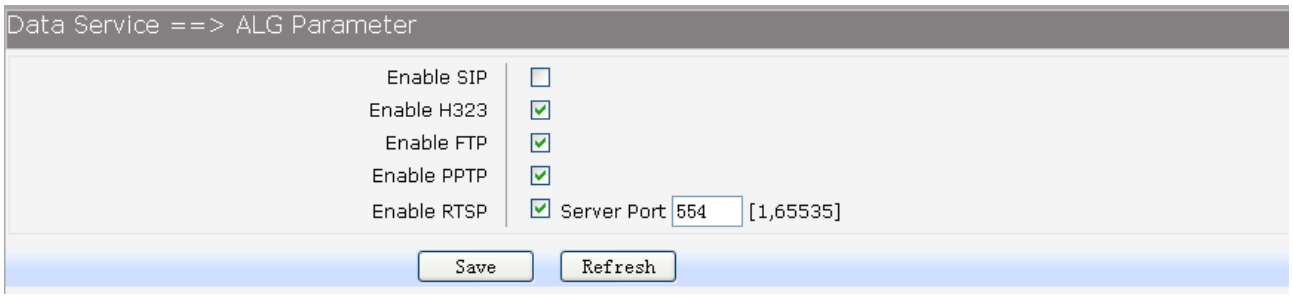


Figure 3-43 *ALG Settings*

The following items are displayed on this screen:

► **Enable SIP:** Enable or disable SIP ALG.

► **Enable H323:** Allow Microsoft NetMeeting clients to communicate across NAT if selected.

► **Enable FTP:** Allow FTP clients and servers to transfer data across NAT if selected.

► **Enable PPTP:** Enable or disable PPTP ALG.

► **Enable RTSP:** Enable or disable RTSP ALG.

3.5.4 Firewall Config

3.5.4.1 Attack Defense

With Attack Defense function enabled, the device can distinguish the malicious packets and prevent the port scanning from external network, so as to guarantee the network security. Configure this for abnormal packets defense and flood attack defense. Flood attack is a commonly used DoS (Denial of Service) attack, including TCP SYN, UDP, ICMP, and so on.

Choose the menu **Data Service→Firewall Config→Attack Defense** to load the following page.

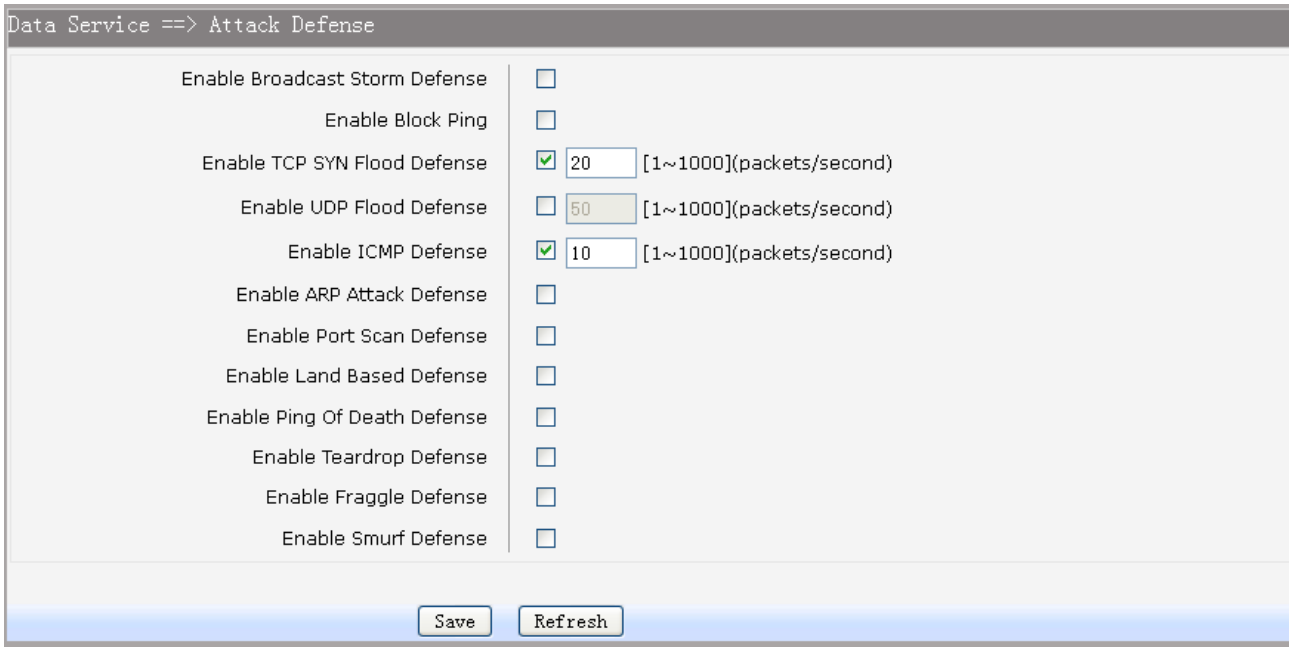


Figure 3-44 *Attack Defense*

The following items are displayed on this screen:

► **Enable Broadcast Storm Defense:** Enable or disable **Broadcast Storm Defense**.

► **Enable Block Ping:** Enable or disable **Block Ping** function.

► **Enable TCP SYN Flood Defense:** Enable or disable **TCP SYN Flood Defense**.

► **Enable UDP Flood Defense:** Enable or disable **UDP Flood Defense**.

► **Enable ICMP Defense:** Enable or disable **ICMP Defense**.

► **Enable ARP Attack Defense:** Enable or disable **ARP Attack Defense**.

► **Enable Port Scan Defense:** A port scanner is a software application designed to probe a server or host for open ports. Check the box to prevent port scanning.

► **Enable Land Based Defense:** The Land Denial of Service attack works by sending a spoofed packet with the SYN flag - used in a "handshake" between a client and a host - set from a host to any port that is open and listening. If the packet is programmed to have the same destination and source IP address, when it is sent to a machine, via IP spoofing, the transmission can fool the machine into thinking it is sending itself a message, which, depending on the operating system, will crash the machine. Check the box to enable **Land Based Defense**.

► **Enable Ping Of Death Defense:** Ping of death is a denial of service (DoS) attack caused by an attacker deliberately sending an IP packet larger than the 65,536 bytes allowed by the IP protocol. Check the box to enable **Ping of Death Defense**.

► **Enable Teardrop Defense:** Teardrop is a program that sends IP fragments to a machine connected to the Internet or a network. Check the box to enable **Teardrop Defense**.

► **Enable Fraggle Defense:** A fraggle attack is a variation of a Smurf attack where an attacker sends a large amount of UDP traffic to ports 7 (echo) and 19 (chargen) to an IP Broadcast Address, with the intended victim's spoofed source IP address. Check the box to enable **Fraggle Defense**.

► **Enable Smurf Defense:** The Smurf Attack is a denial-of-service attack in which large numbers of Internet Control Message Protocol (ICMP) packets with the intended victim's spoofed source IP are broadcast to a computer network using an IP Broadcast address. Check the box to enable **Smurf Defense**.

3.5.4.2 Service Type

Service Type defines the entry with protocol and port range, which can be chosen in Internet Access-Ctrl page. Choose the menu **Data Service→Firewall Config→Service Type** to load the following page.

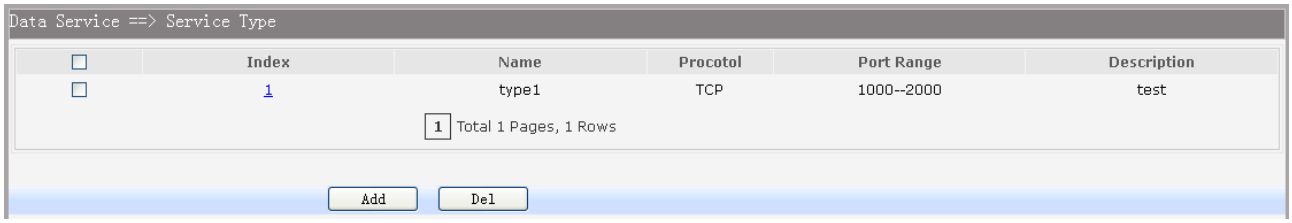


Figure 3-45 *View Service Type Configuration*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

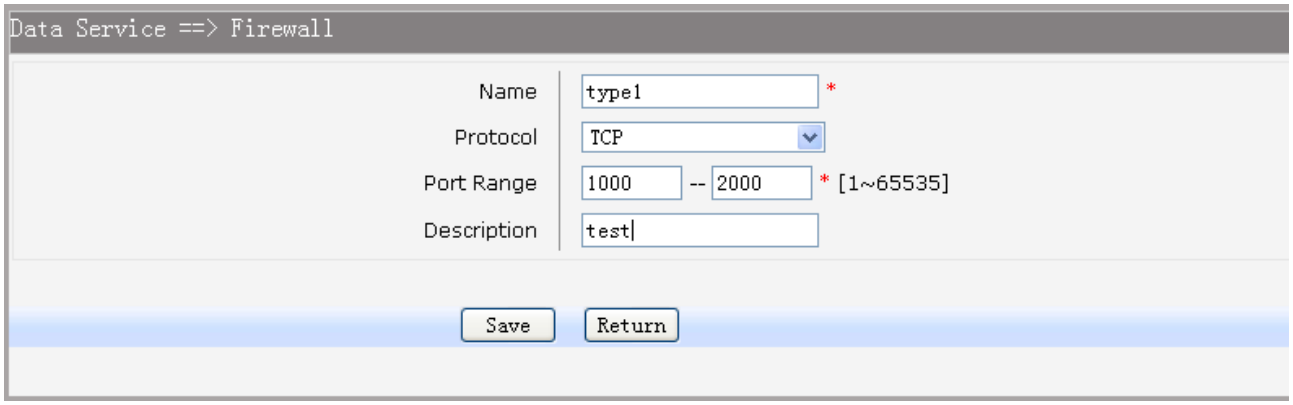


Figure 3-46 *Add or Modify Service Type Entry*

The following items are displayed on this screen:
► **Name:** Name of this entry, it will be list in Internet Access-Ctrl page.
► **Protocol:** Select the protocol for this entry. Four types are provided: TCP, UDP, ICMP and ALL.
► **Port Range:** Configure the port range for this entry.
► **Description:** Enter a description string for this entry

3.5.4.3 Internet Access-Ctrl

Each sub-page under this page is used to control Internet access.

3.5.4.3.1 Access Control

This sub-page is used to control Internet access through IP, port, and time.
Choose the menu **Data Service→Firewall Config→Internet Access-Ctrl→Access Control** to load the following page.

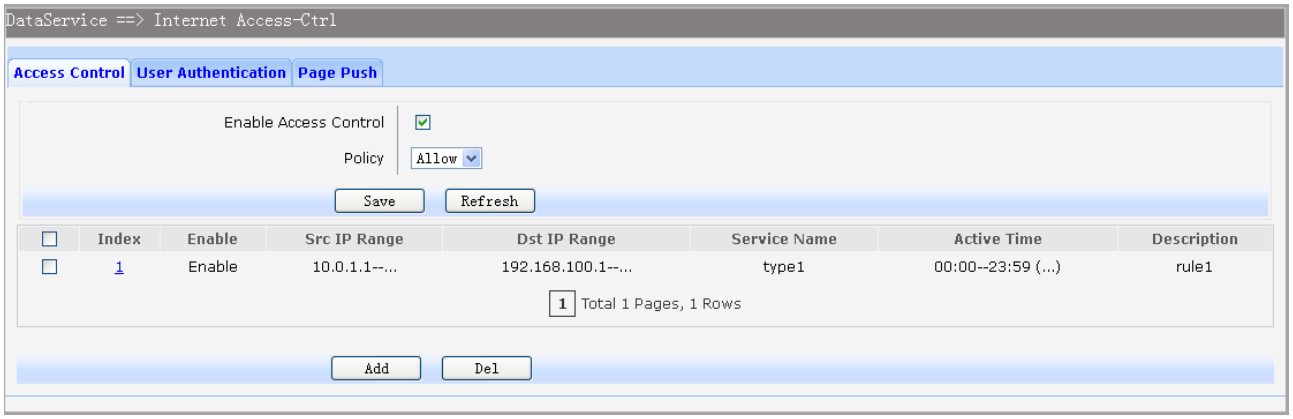


Figure 3-47 *View Access Control Entry*

The following items are displayed on this screen:

► **Enable Access Control:** Enable or disable access control from WAN.

► **Policy:** Default policy of access control: **Allow** or **Deny**. If Allow is selected, all packets will be allowed except the entries list on this page. If Deny is selected, all packets will be denied except the entries list on this page.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

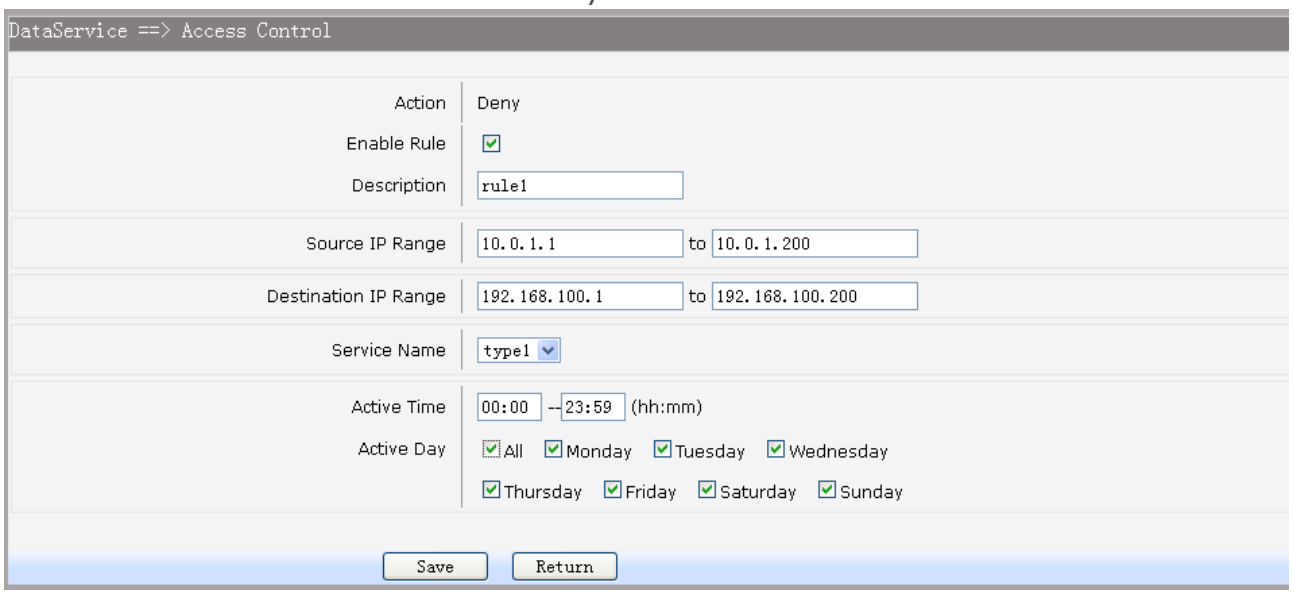


Figure 3-48 *Add or Modify Access Control Entry*

The following items are displayed on this screen:

► **Action:** The policy of this entry, Allow or Deny. It is the inverse of **Policy**. Read only.

► **Enable Rule:** Enable or disable this rule.

► **Description:** Enter a description string for this rule

► **Source IP Range:** Enter the source IP range in dotted-decimal format (e.g. 192.168.1.23).

► **Destination IP Range:** Enter the destination IP range in dotted-decimal format (e.g. 192.168.1.23).

► **Service Name:** Choose a service type that defined in **Service Type** page.

► **Active Time:** Specify the time range for the entry to take effect.

► **Active Day:** Specify the day range for the entry to take effect.

3.5.4.3.2 User Authentication

This sub-page is used to control Internet access through username and password. Choose the menu **Data Service→Firewall Config→Internet Access-Ctrl→User Authentication** to load the following page.

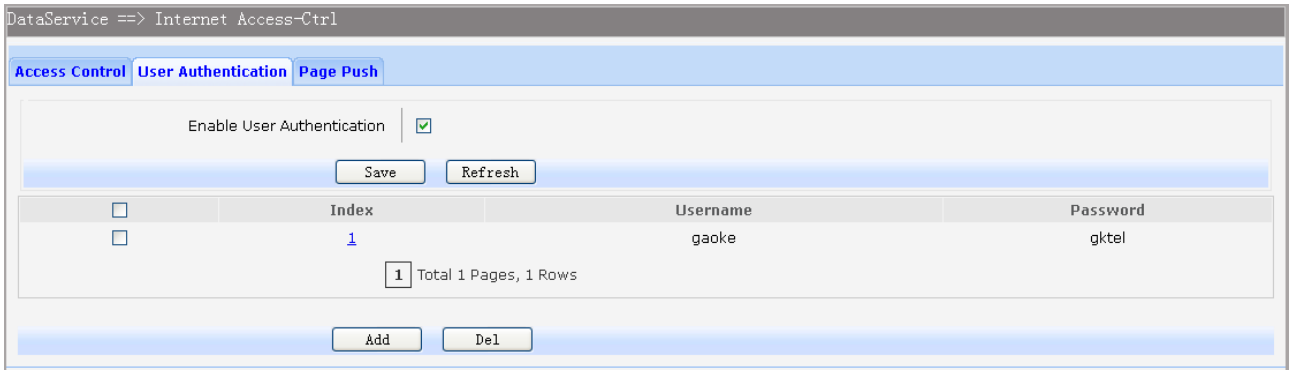


Figure 3-49 *View User Authentication Entry*

The following items are displayed on this screen:

► **Enable User Authentication:** Enable or disable user authentication globally. If enabled, only the following list of users and passwords can access the Internet. Press **Save** button if you have modified this parameter.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

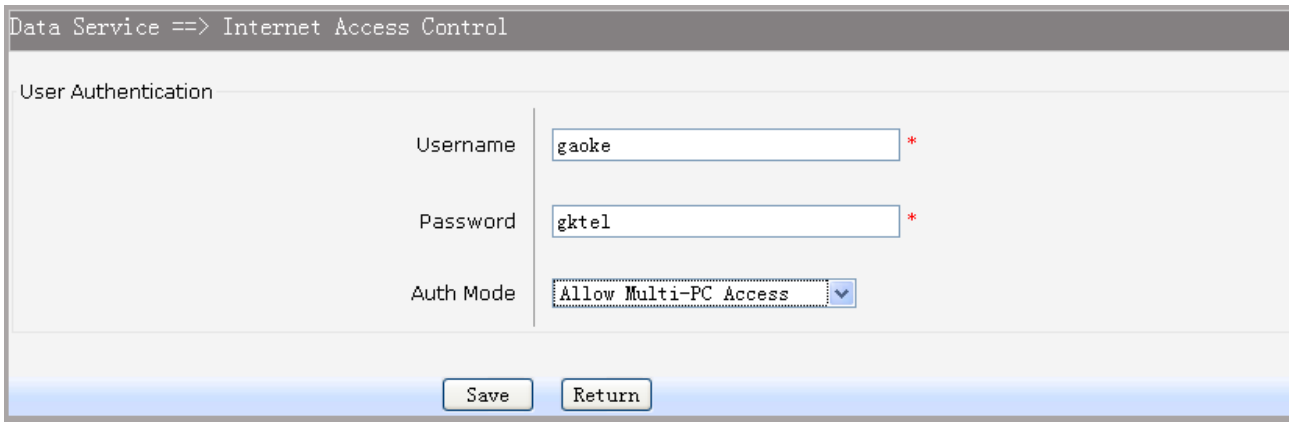


Figure 3-50 *Add or Modify User Authentication Entry*

The following items are displayed on this screen:

► **Username:** Enter the username of this entry.

► **Password:** Enter the password of this entry.

► **Auth Mode:** Choose the authentication mode of this entry. Provides four modes:

Allow Multi-PC Access: Allows multiple computers to access the Internet using this account.

Allow One PC Access: Only allows one computer to access the Internet using this account.

Allow Special IP Access: Allowing only specified IP computer uses this account to access the Internet.
Allow Special MAC Access: Allowing only specified MAC computer uses this account to access the Internet

3.5.4.3.3 Page Push

HTTP Page push is a mechanism for sending unsolicited (asynchronous) data from web server to a web browser. When accessing the Internet for the first time, the specified HTTP page will be pushed to the browser when enabled.
Choose the menu **Data Service→Firewall Config→Internet Access-Ctrl→Page Push** to load the following page.

Figure 3-51 *Configure Page Push*

The following items are displayed on this screen:

► **Enable Page Push:** If enabled, push specified HTTP page to the browser when accessing the Internet for the first time.

► **Push Http Url:** Specifies the HTTP URL of the page you want to push.

3.5.4.4 Network Access-Ctrl

3.5.4.4.1 WEB

Choose the menu **Data Service→Firewall Config→Network Access-Ctrl→WEB** to load the following page.

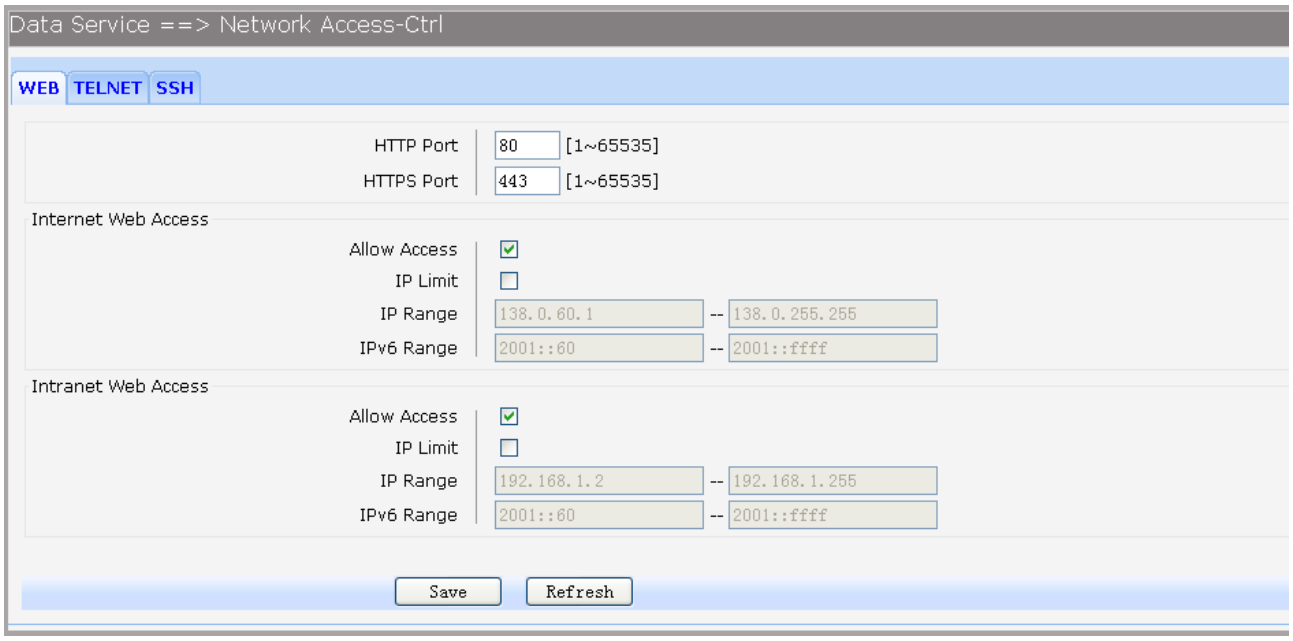


Figure 3-52 *Configure WEB Access-Ctrl*

The following items are displayed on this screen:

► **HTTP Port:** Port used with HTTP access device.
HTTP: Hypertext Transfer Protocol.

► **HTTPS Port:** Port used with HTTPS access device.
HTTPS: it is the result of simply layering the Hypertext Transfer Protocol (HTTP) on top of the SSL/TLS protocol.

Internet Web Access:

► **Allow Access:** If enabled, allow user to access the device from the Internet via WEB.

► **IP Limit:** If enabled, allow only specific IP range to access the device from the Internet via WEB.

► **IP Range:** If **IP Limit** enabled, specifies the IPv4 address range that is only allowed to access to the device from the Internet via WEB.

► **IPv6 Range:** If **IP Limit** enabled, specifies the IPv6 address range that is only allowed to access to the device from the Internet via WEB.

Intranet Web Access:

► **Allow Access:** If enabled, allow user to access the device from the Intranet via WEB.

► **IP Limit:** If enabled, allow only specific IP range to access the device from the Intranet via WEB.

► **IP Range:** If **IP Limit** enabled, specifies the IPv4 address range that is only allowed to access the device from the Intranet via WEB.

► **IPv6 Range:** If **IP Limit** enabled, specifies the IPv6 address range that is only allowed to access the device from the Intranet via WEB.

3.5.4.4.2 TELNET

Choose the menu **Data Service→Firewall Config→Network Access-Ctrl→TELNET** to load the following page.

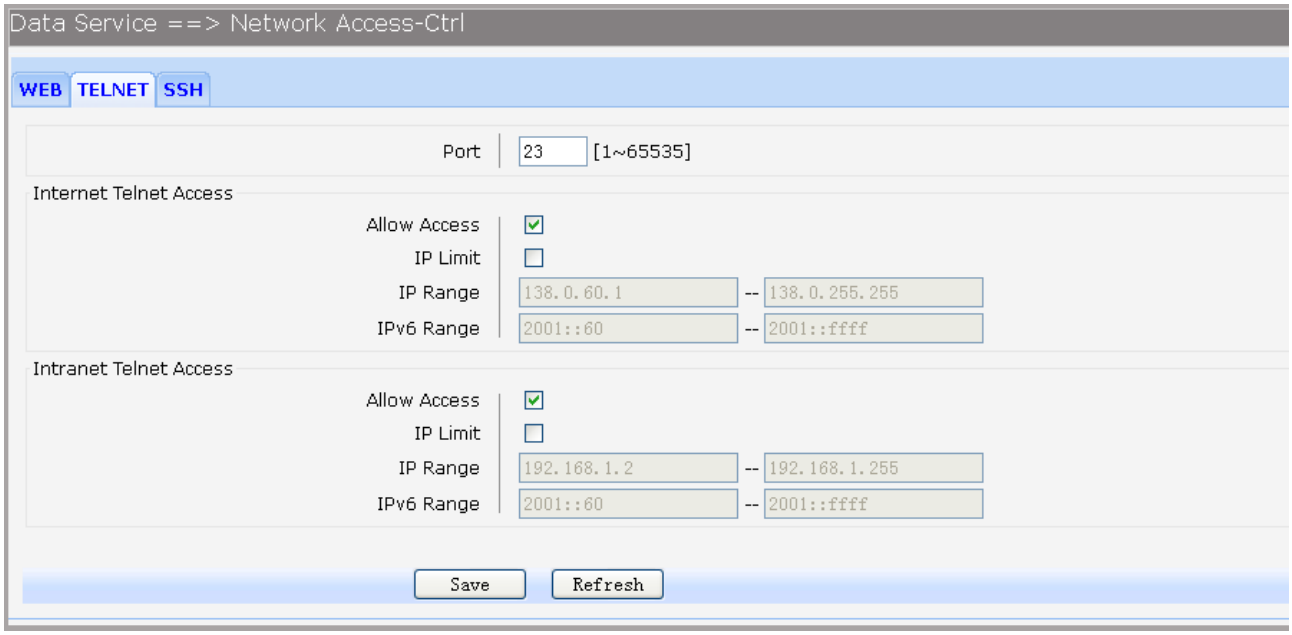


Figure 3-53 *Configure Telnet Access-Ctrl*

The following items are displayed on this screen:

► **Port:** Port when using telnet tools access device.

Internet Web Access:

► **Allow Access:** If enabled, allow access to the device from the Internet via telnet.

► **IP Limit:** If enabled, allow only specific IP range to access the device from the Internet via telnet

► **IP Range:** If **IP Limit** enabled, specifies the IPv4 address range that only allow access to the device from the Internet via telnet.

► **IPv6 Range:** If **IP Limit** enabled, specifies the IPv6 address range that only allow access to the device from the Internet via telnet.

Intranet Web Access:

► **Allow Access:** If enabled, allow access to the device from the Intranet via telnet.

► **IP Limit:** If enabled, allow only specific IP range to access the device from the Intranet via telnet

► **IP Range:** If **IP Limit** enabled, specifies the IPv4 address range that only allow access to the device from the Intranet via telnet.

► **IPv6 Range:** If **IP Limit** enabled, specifies the IPv6 address range that only allow access to the device from the Intranet via telnet.

3.5.4.4.3 SSH

Choose the menu **Data Service→Firewall Config→Network Access-Ctrl→SSH** to load the following page.

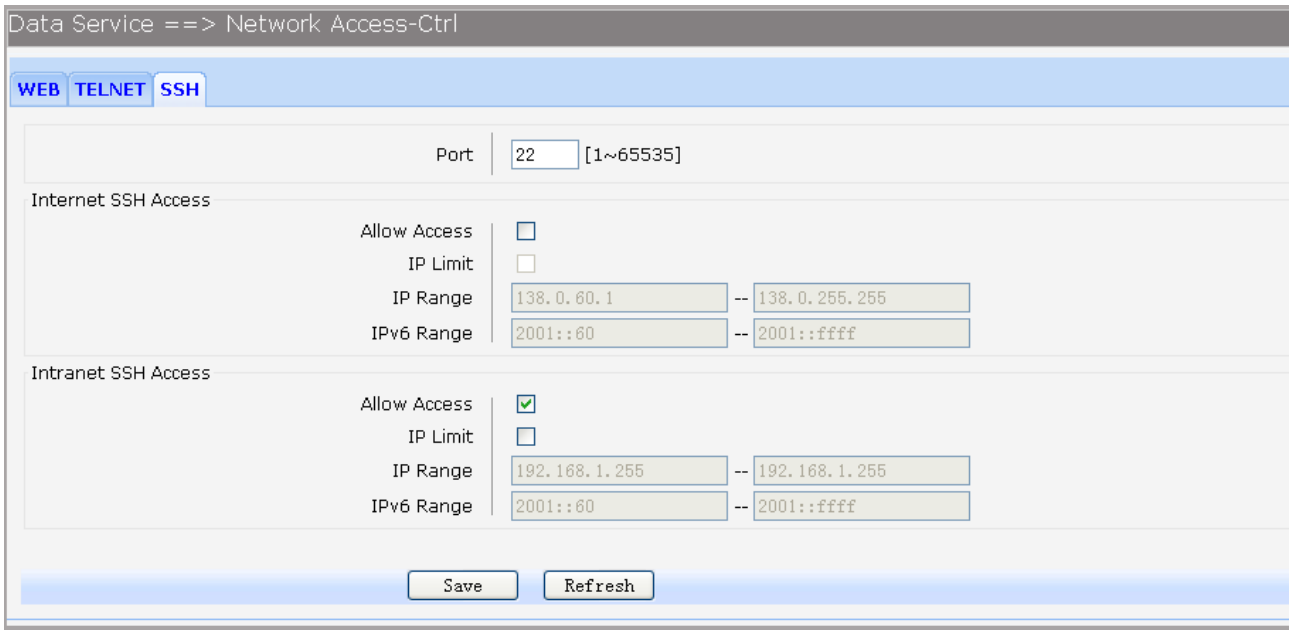


Figure 3-54 *Configure SSH Access-Ctrl*

The following items are displayed on this screen:

► **Port:** Port when using SSH tools access device.

Internet Web Access:

► **Allow Access:** If enabled, allow access to the device from the Internet via SSH.

► **IP Limit:** If enabled, allow only specific IP range to access the device from the Internet via SSH

► **IP Range:** If **IP Limit** enabled, specifies the IPv4 address range that only allow access to the device from the Internet via SSH.
► **IPv6 Range:** If **IP Limit** enabled, specifies the IPv6 address range that only allow access to the device from the Internet via SSH.

Intranet Web Access:

► **Allow Access:** If enabled, allow access to the device from the Intranet via SSH.
► **IP Limit:** If enabled, allow only specific IP range to access the device from the Intranet via SSH
► **IP Range:** If **IP Limit** enabled, specifies the IPv4 address range that only allow access to the device from the Intranet via SSH.
► **IPv6 Range:** If **IP Limit** enabled, specifies the IPv6 address range that only allow access to the device from the Intranet via SSH.

3.5.4.5 Filter Strategy

Each sub-page under this page is used to filter Internet access.

3.5.4.5.1 Keyword Filter

Choose the menu **Data Service→Firewall Config→Filter Strategy→Keyword Filter** to load the following page.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

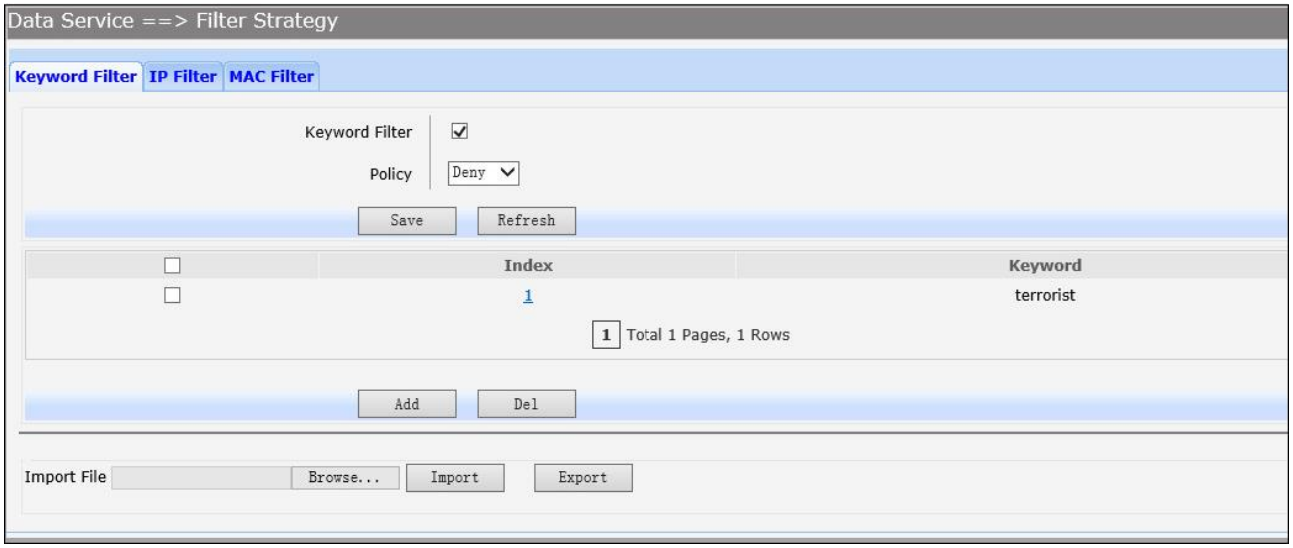


Figure 3-55 *Configure Keyword Filter*

The following items are displayed on this screen:

► **Keyword Filter:** If enabled, packet filtering is enabled by keyword.
► **Policy:** The policy for filtering web page, Deny and Allow.

You can export all the keywords as a file. Of course, you can also import a file.

3.5.4.5.2 IP Filter

On this page, you can control the Internet access of local hosts by specifying their IP addresses.

Choose the menu **Data Service→Firewall Config→Filter Strategy→IP Filter** to load the following page.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

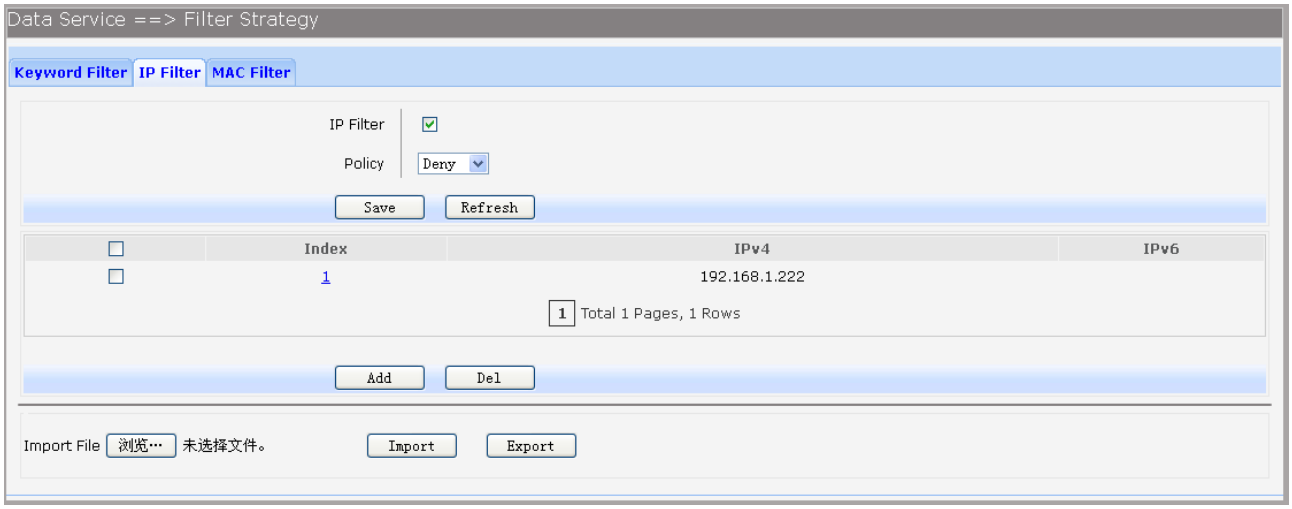


Figure 3-56 *Configure IP Filter*

The following items are displayed on this screen:

► **IP Filter:** If enabled, packet filtering is enabled by IP address.

► **Policy:** The policy for IP address list. Deny and Allow.

You can export all the IP addresses as a file. Of course, you can also import a file.

3.5.4.5.3 MAC Filter

On this page, you can control the Internet access of local hosts by specifying their MAC addresses.

Choose the menu **Data Service→Firewall Config→Filter Strategy→MAC Filter** to load the following page.

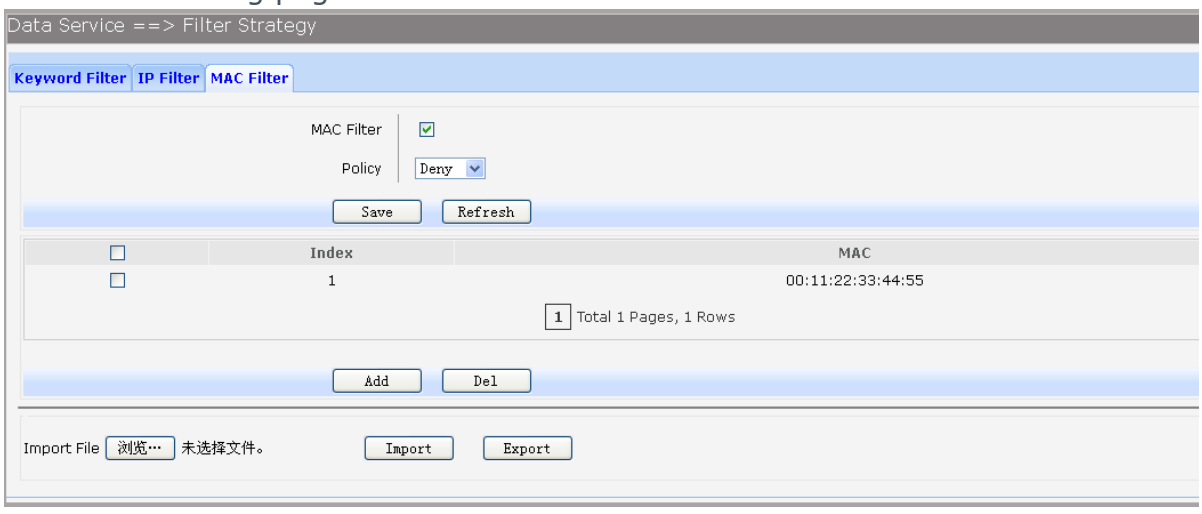


Figure 3-57 *Configure MAC Filter*

The following items are displayed on this screen:

► **IP Filter:** If enabled, packet filtering is enabled by MAC.

► **Policy:** The policy for MAC list. Deny and Allow.

You can export all the MAC addresses as a file. Of course, you can also import a file.

If you want to delete an entry, select it and click the **Del**. Click the **Add** button to add a new entry.

There are two ways to add MAC:

Artificial designated MAC: You can manually enter a MAC.

Using Studying MAC: You can choose one or more MAC devices learned.

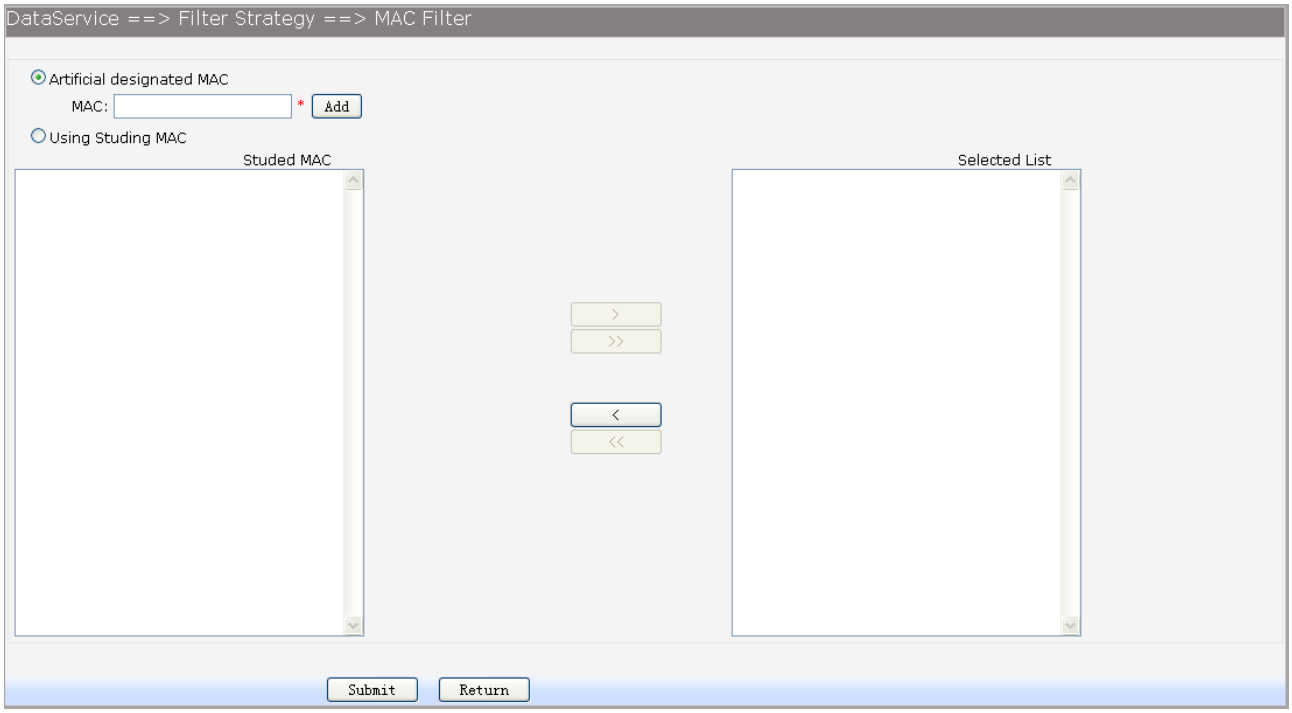


Figure 3-58 *Add a MAC Filter Entry*

3.5.4.6 IP&MAC Binding

Choose the menu **Data Service→Firewall Config→IP&MAC Binding** to load the following page.

There are two ways to add a binding entry: You can manually enter a pair of IP and MAC, and then press **Add Item**. Alternatively you can select a pair of IP and MAC in **Scan List** that device learned.

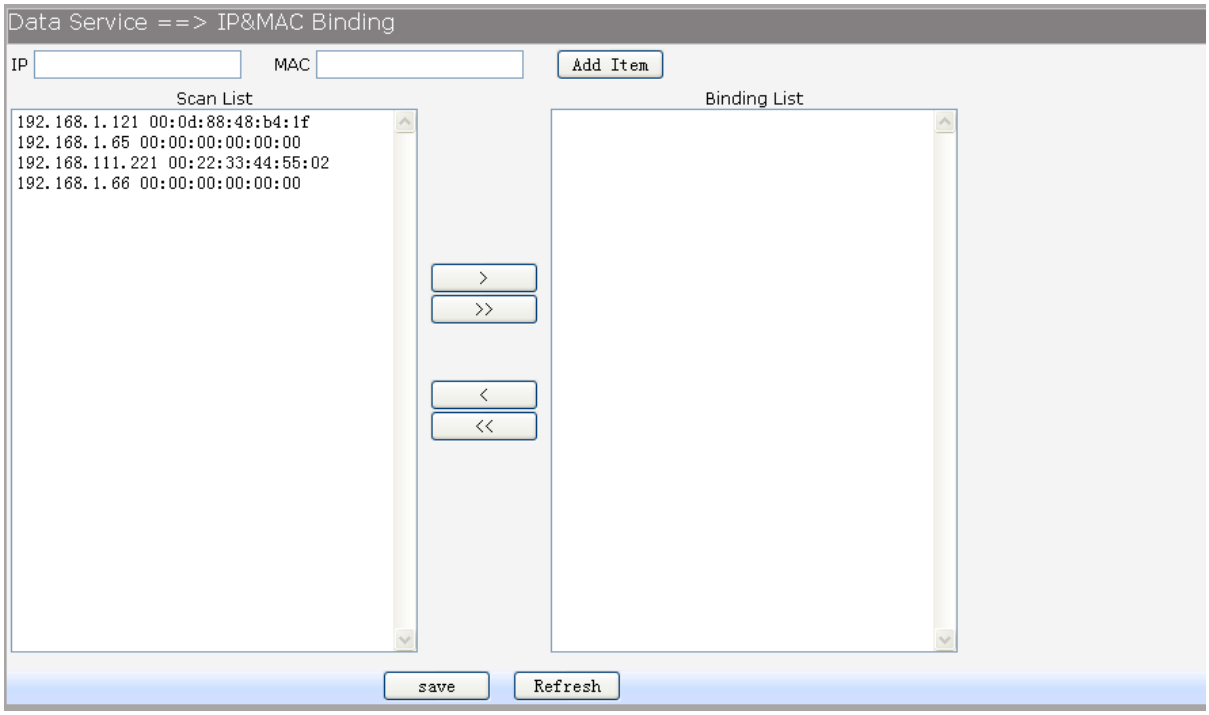


Figure 3-59 *Configure IP&MAC Binding*

3.5.5 QoS

3.5.5.1 Basic Settings

QOS feature is enabled by default, based on 802.1P, strict priority scheduling mode. The device supports four priority queues, when QOS feature enabled.

Choose the menu **Data Service→QoS→Basic Settings** to load the following page.

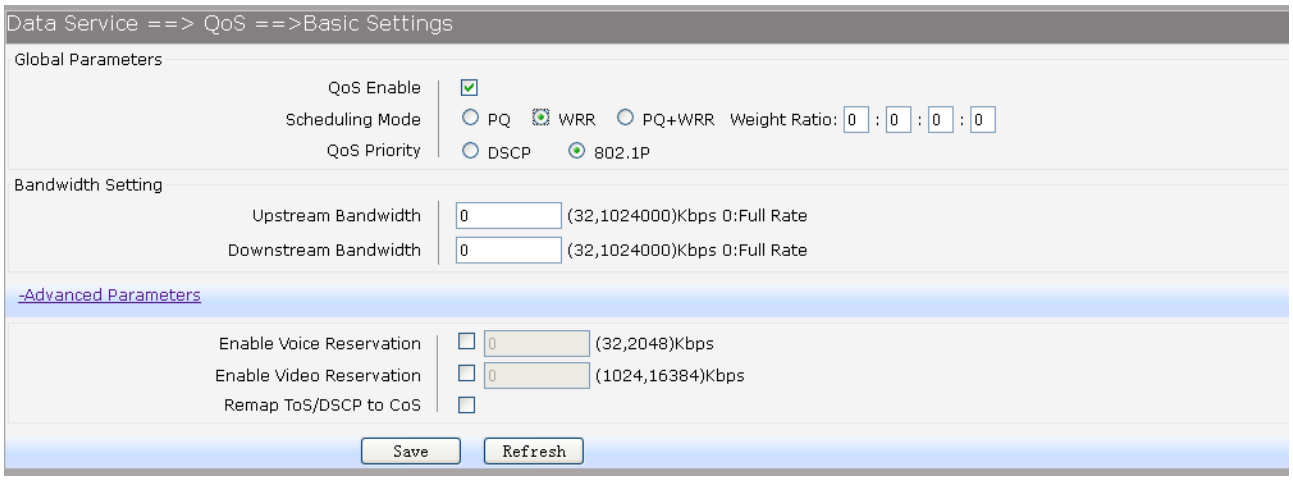


Figure 3-60 *Configure QoS Basic Settings*

The following items are displayed on this screen:

Global Parameters

► **Qos Enable:** Enable or disable QoS functionality.

► **Scheduling Mode:** **PQ:** PQ means strict priority, that is, when congestion occurs, first sending packets of high priority queue.
WRR: All queues use weighted fair queuing scheme which is defined in **Weight Ratio**
PQ+WRR: Only highest queue use strict priority; others use weighted fair queuing scheme.

► **Qos Priority:** **DSCP:** When you select DSCP value, corresponding to the following relationship.

DSCP priority value	Priority queue (queue 3 highest priority)
0-15	Queue 0
16 ~ 31	Queue 1
32 to 47	Queue 2
48 ~ 63	Queue 3

802.1P: Select the queue classification mode, when selecting 802.1P mode, depending on the value of 802.1p priority classification into different queues, corresponding to the following relationship.

801.1p priority value	Priority queue (queue 3 highest priority)
0 to 1	Queue 0
2.3	Queue 1
4.5	Queue 2
6-7	Queue 3

Bandwidth Setting

► **Upstream Bandwidth:** Configure the bandwidth of upstream.

► **Downstream Bandwidth:** Configure the bandwidth of downstream.

Advanced Parameters

► **Enable Video Reservation:** Enable video reservation and give the value to reserved for video

► **Remap Tos/DSCP to CoS:** Check the box that the system will remark 802.1P value with TOS/DSCP of upstream packets, the mapping relationship is as follows:

DSCP priority value	802.1p priority
0-7	0
8-15	1
16 ~ 23	2
24 ~ 31	3
32 to 39	4
40 ~ 47	5
48 ~ 55	6
56 to 63	7

3.5.5.2 Port Rate Limit

Rate limit for physical LAN ports, you can select the package type restrictions limiting the entrance. All multiples of 32kbps speed requirements

Choose the menu **Data Service→QoS→Port Rate Limit** to load the following page.

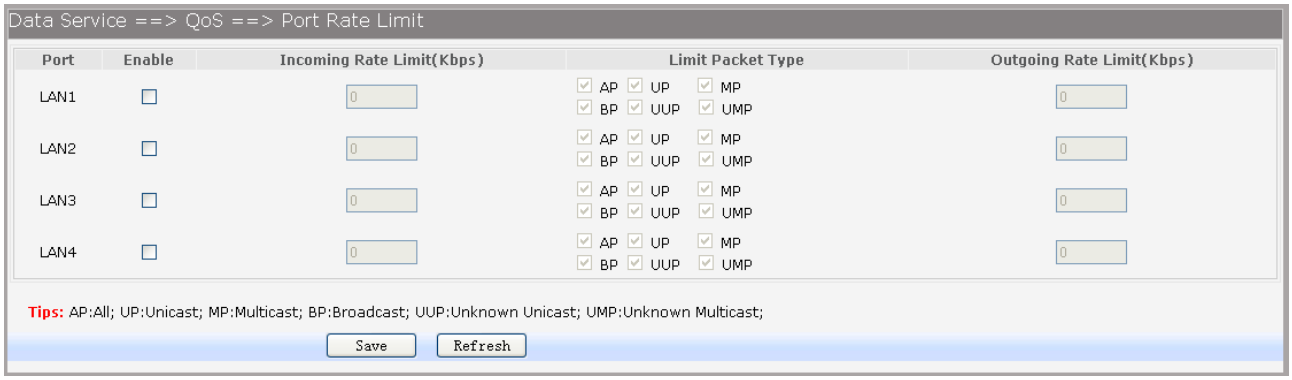


Figure 3-61 *Configure Qos Port Rate Limit*

The following items are displayed on this screen:

► **Port:** Physical LAN port

► **Enable:** Enable or disable rate limit function.

► **Incoming Rate Limit:** Enter incoming maximum rate, which must is times of 32Kbsp.

►**Limit Packet Type:** Select the packet type which is limited rate.

► **Outgoing Rate Limit:** Enter Outgoing maximum rate, which must is times of 32Kbsp.

3.5.5.3 Flow Rate Limit

Choose the menu **Data Service→QoS→Flow Rate Limit** to load the following page.

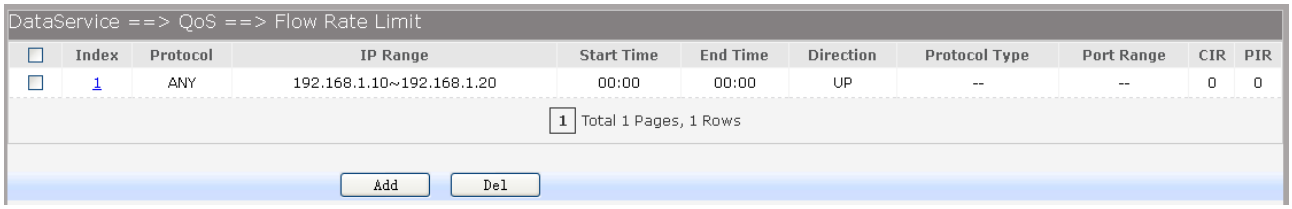


Figure 3-62 *View QoS Flow Rate Limit Entry*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

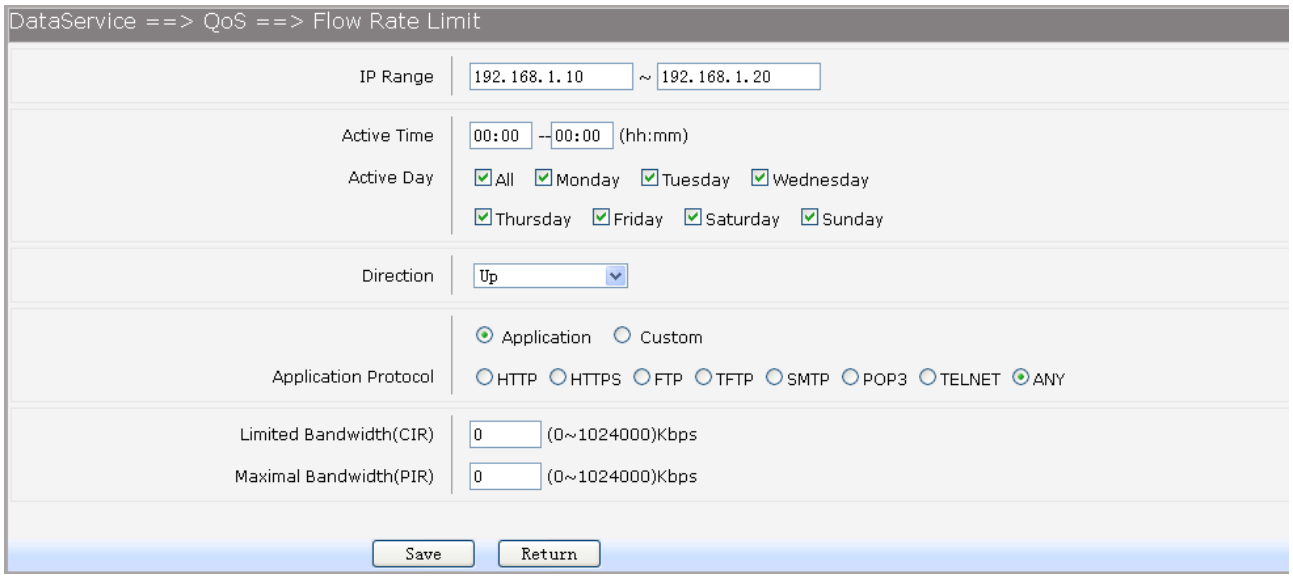


Figure 3-63 *Configure Qos Flow Rate Limit*

The following items are displayed on this screen:

► **IP Range:** The IP range of LAN's PC.

► **Active Time:** If not configured, which means that all time are in active

► **Active Day:** If not configured, which means that all time in active

► **Direction:** **Up: C**heck the frame from the direction of the LAN port to the WAN port, and match the source IP and destination port;

Down: Check the frame from the direction of the WAN port to the LAN port, and match the destination IP and source port;

Bidirectional: Limit both upstream and downstream speed.

► **Limited Bandwidth(CIR):** The limited bandwidth.

► **Maximal Bandwidth(PIR):** The maximum bandwidth.

If **Application** is selected:

► **Application Protocol:** Such as HTTP, HTTPS, FTP, TFTP, SMTP, POP3, TELNET, etc.

If **Custom** is selected, the following page will be loaded:

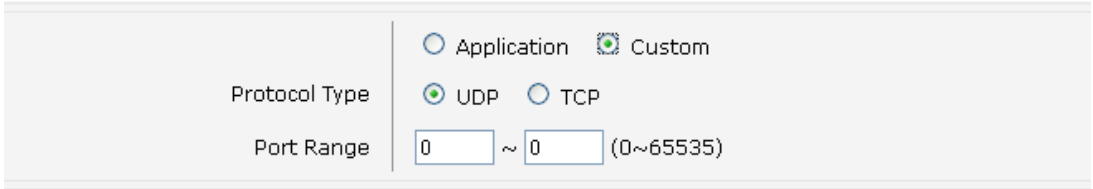


Figure 3-64 *Configure Custom of Qos Flow Rate Limit*

The following items are displayed on this screen:

► **Protocol Type:** Custom protocol type, UDP or TCP.

► **Port Range:** Set port range.

3.5.5.4 Service

The device supports to remap scheduling priority and remark the value of DSCP or 802.1P according to the service type.

Choose the menu **Data Service→QoS→Service** to load the following page.

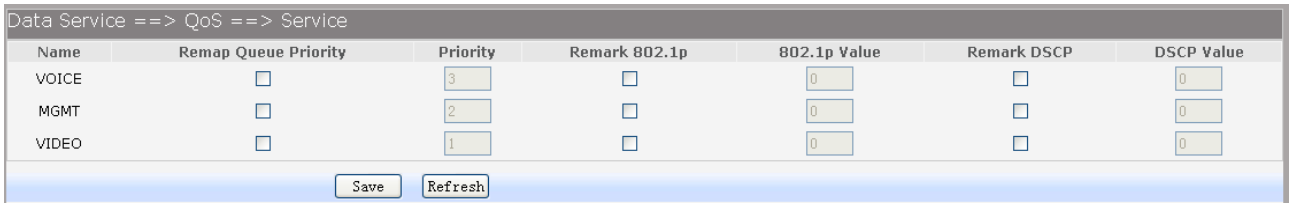


Figure 3-65 *View Qos Service*

The following items are displayed on this screen:

► **Name:** Service name. Read only.

► **Remap Queue Priority:** Check the box to remap scheduling queue.

► **Priority:** There are four levels of priority. Priority 3 is highest, and priority 0 is the lowest

► **Remark 802.1p:** Check the box to enable 802.1p priority remarking.

► **802.1p Value:** The value of remarking 802.1P.

► **Remark DSCP:** Check the box to enable DSCP remarking.

► **DSCP Value:** The value of remarking DSCP.

3.5.5.5 ACL

Choose the menu **Data Service→QoS→ACL** to load the following page.

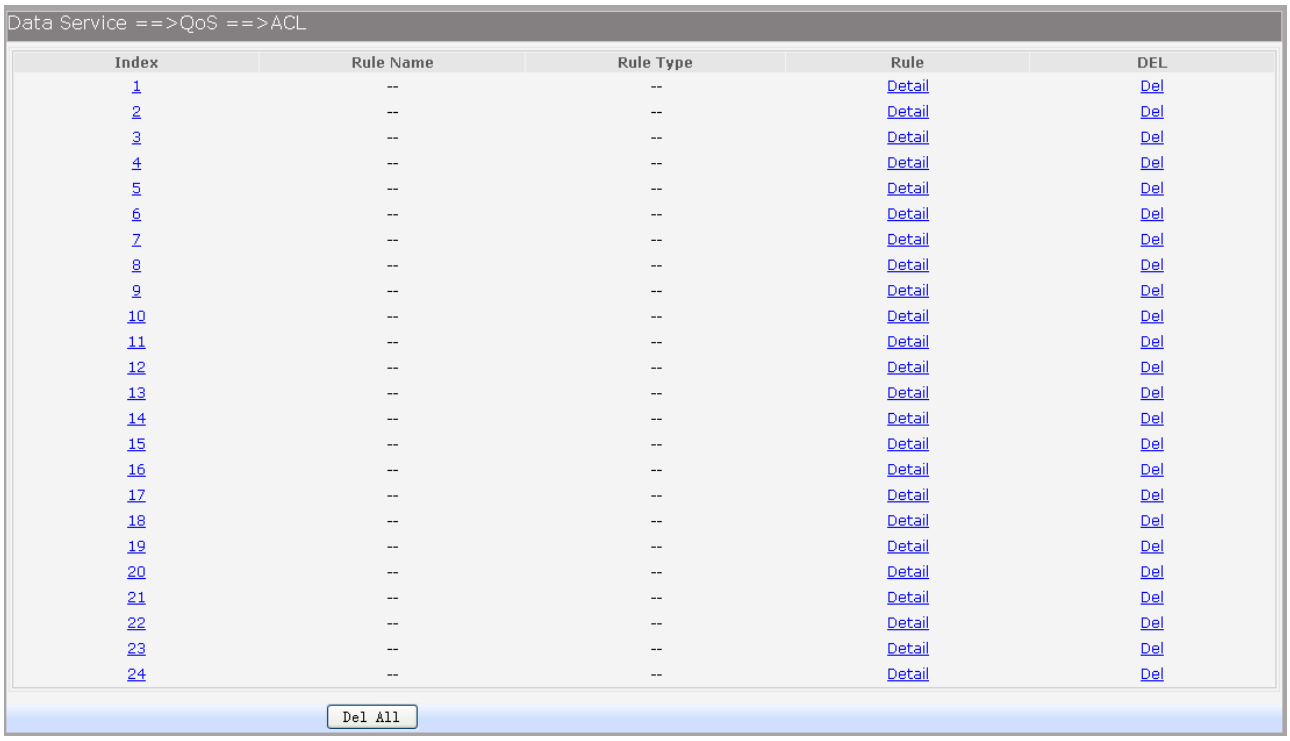


Figure 3-66 *View Qos ACL*

Click the **Del** in the entry you want to delete.

Click the **Index** or **Detail** in the entry you want to modify, and then the following page will be loaded:

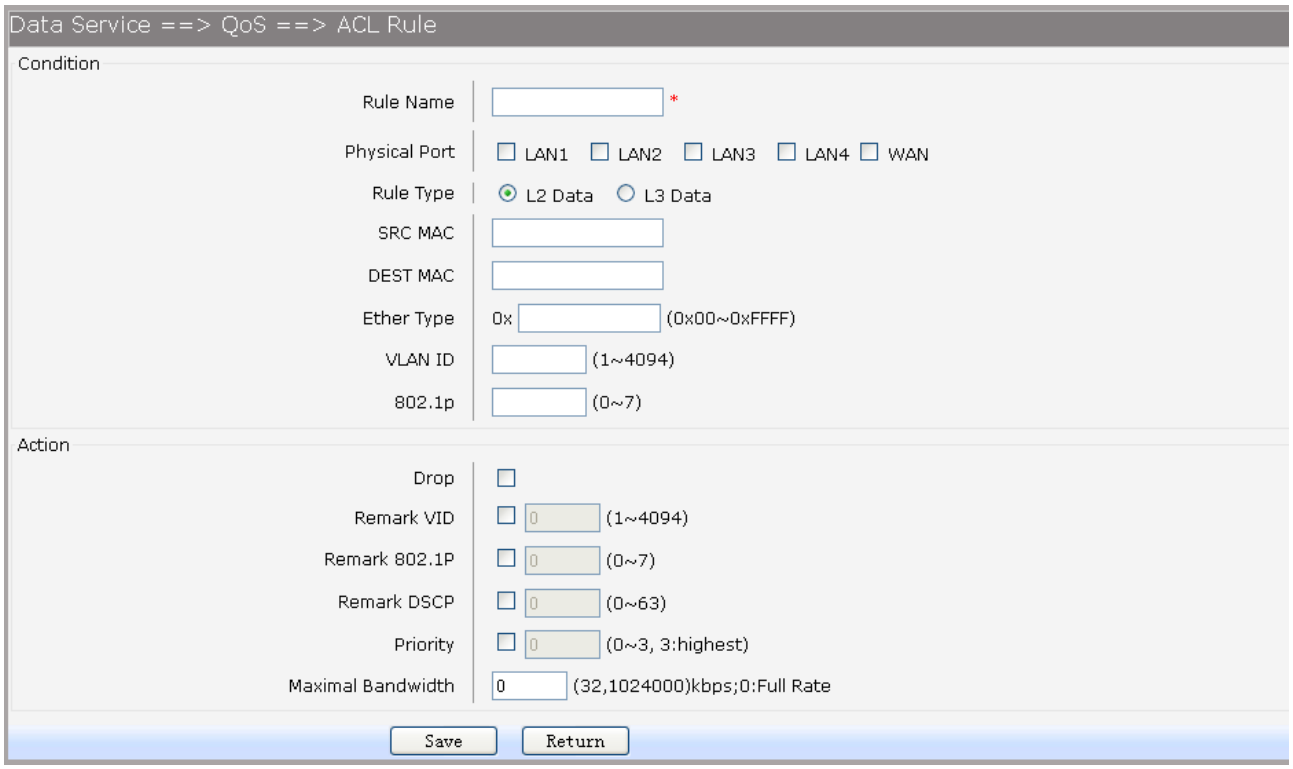


Figure 3-67 *Modify Qos ACL*

The following items are display on this page:

Condition:

► **Rule Name:** The custom name.

► **Physical Port:** Rule's source port

► **Rule Type:** Type of rule: **L2 data** or **L3 data**.

If **L3 Data** is selected:

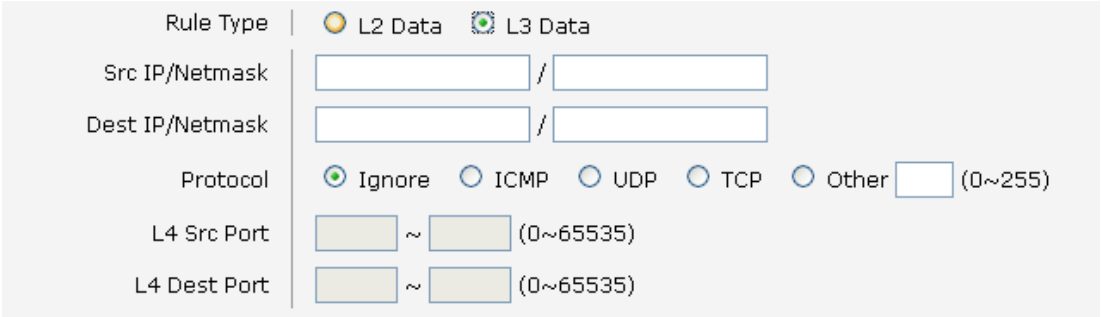


Figure 3-68 *L3 Data Rule Type*

The following items are display on this page:

► **Src IP/Netmask:** The source IP address and netmask of packets, such is 192.168.100.1/255.255.255.0.

► **Dest IP/Netmask:** The destination IP address and netmask of packets.

► **Protocol:** E.g. ICMP, UDP, TCP, or custom IP protocol types.
► **L4 Src Port:** Source port range.
► **L4 Dest Port:** Destination port range.

If **L2 Data** is selected:

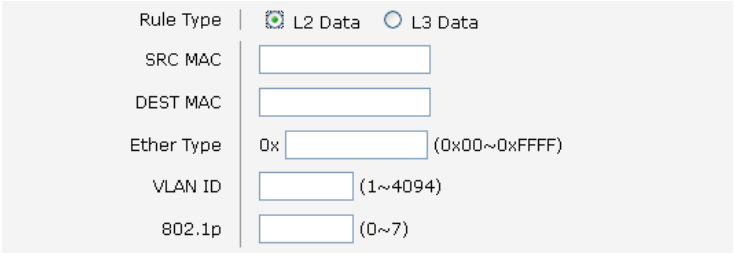


Figure 3-69 *L2 Data Rule Type*

The following items are display on this page:
► **SRC MAC:** Source MAC address of packets.
► **DEST MAC:** Destination MAC address of packets.
► **Ether Type:** The ether type of packets.
► **VLAN ID:** The VLAN id of packets.
► **802.1p:** The VLAN priority of packets.

Action
► **Drop:** Drop the packets matched with the rule.
► **Remark VID:** Change the VID of packets matched with the rule.
► **Remark 802.1p:** Change the 802.1P priority of packets matched with the rule.
► **Remark DSCP:** Change the DSCP of packets matched with the rule.
► **Priority:** Change the scheduling queue of packets matched with the rule.
► **Maximal Bandwidth:** Limit the bandwidth of packet matched with the rule.

3.5.6 DDNS

DDNS(Dynamic DNS) service allows you to assign a fixed domain name to a dynamic WAN ip address, which enables the Internet hosts to access the Router or the hosts in LAN using the domain names.
Choose the menu **Data Service→DDNS** to load the following page.

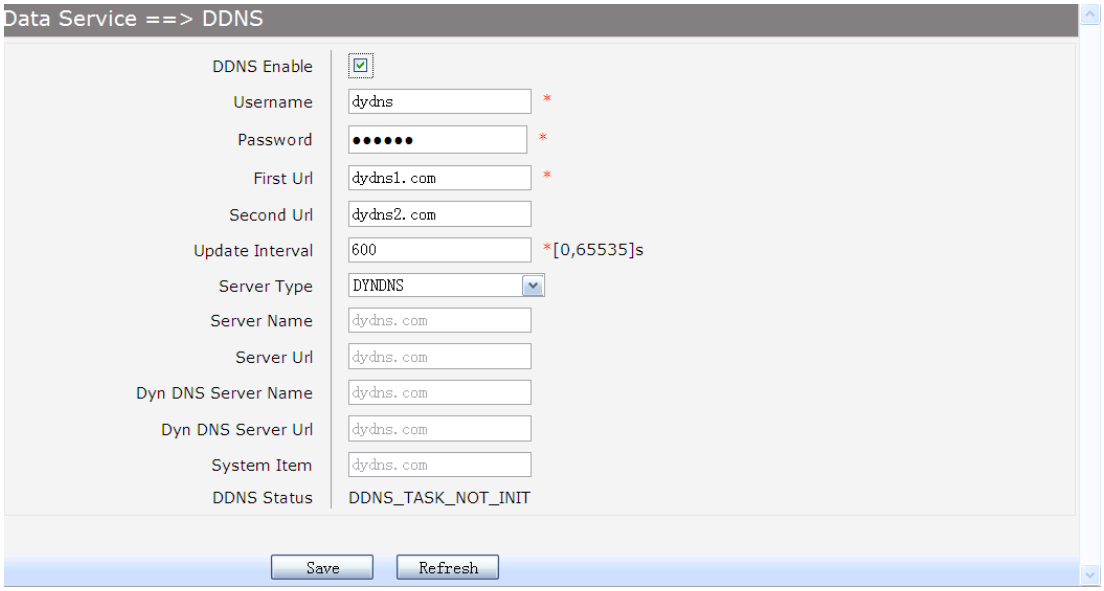


Figure 3-70 *Configure DDNS*

The following items are display on this page:

► **DDNS Enable:** Active or inactive dynamic DNS service.
► **Username:** Enter account name of your DDNS account.
► **Password:** Enter password of your DDNS account.
► **First Url:** First domain name that you registered your DDNS service provider.
► **Second Url:** First domain name that you registered your DDNS service provider.
► **Update Interval:** How often, in seconds, the IP is updated.
► **Server Type:** optional DDNS server type, can select from pull-dwon list:
DYNDNS: For dyndns.org
FREEDNS: For freedns.afraid.org
ZONE: For zoneedit.com
NOIP: For no-ip.com
3322: For 3322.org
CUSTOM: For custom self-defined DDNS server type.
► **Server Name:** If CUSTOM is selected, specify server name of the device.
► **Server Url:** If CUSTOM is selected, specify server URL of the device.
► **Dyn DNS Server Name:** If CUSTOM is selected, specify dyndns DNS server name of custom self-defined.
► **Dyn DNS Server Url:** If CUSTOM is selected, specify dyndns DNS server URL of custom self-defined.

► **System Item:** If CUSTOM is selected, specify system item of custom self-defined.
► **DDNS Status:** Display the status of DDNS service. Read only.
Click the **Save** button when finished.
Click **Refresh** button to refresh the web page.

3.5.7 VPN

VPN (Virtual Private Network) is a private network established via the public network, generally via the Internet. However, the private network is a logical network without any physical network lines, so it is called Virtual Private Network.
With the wide application of the Internet, more and more data are needed to be shared through the Internet. Connecting the local network to the Internet directly, though can allow the data exchange, will cause the private data to be exposed to all the users on the Internet. The VPN (Virtual Private Network) technology is developed and used to establish the private network through the public network, which can guarantee a secured data exchange.
VPN adopts the tunneling technology to establish a private connection between two endpoints. It is a connection secured by encrypting the data and using point-to-point authentication. The following diagram is a typical VPN topology.

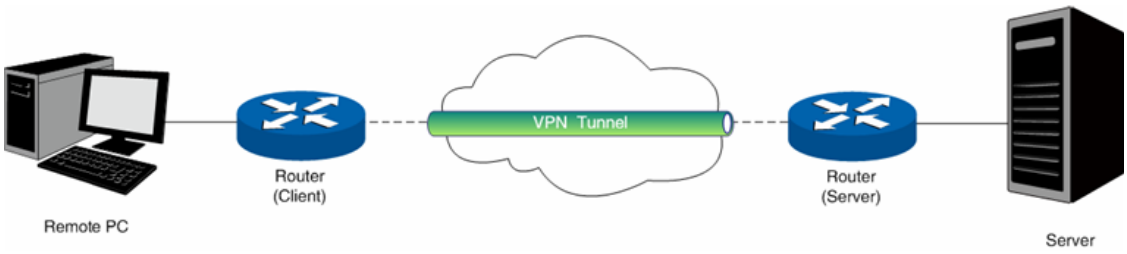


Figure 3-71 *VPN – Network Topology*

As the packets are encapsulated and de-encapsulated in the Router, the tunneling topology implemented by encapsulating packets is transparent to users. The tunneling protocols supported contain Layer 3 IPSEC and Layer 2 L2TP/PPTP.

3.5.7.2 PPTP Server

Layer 2 VPN tunneling protocol consists of L2TP (Layer 2 Tunneling Protocol) and PPTP (Point to Point Tunneling Protocol).Both L2TP and PPTP encapsulate packet and add extra header to the packet by using PPP (Point to Point Protocol).
Table depicts the difference between L2TP and PPTP.

Protocol	Media	Tunnel	Length of Header	Authentication
PPTP	IP network	Single tunnel	6 bytes at least	Not supported
L2TP	IP network of UDP	Multiple tunnels	4 bytes at least	Supported

Figure 3-72 *Difference between L2TP and PPTP*

Choose the menu **Data Service→VPN→PPTP Server** to load the following page.

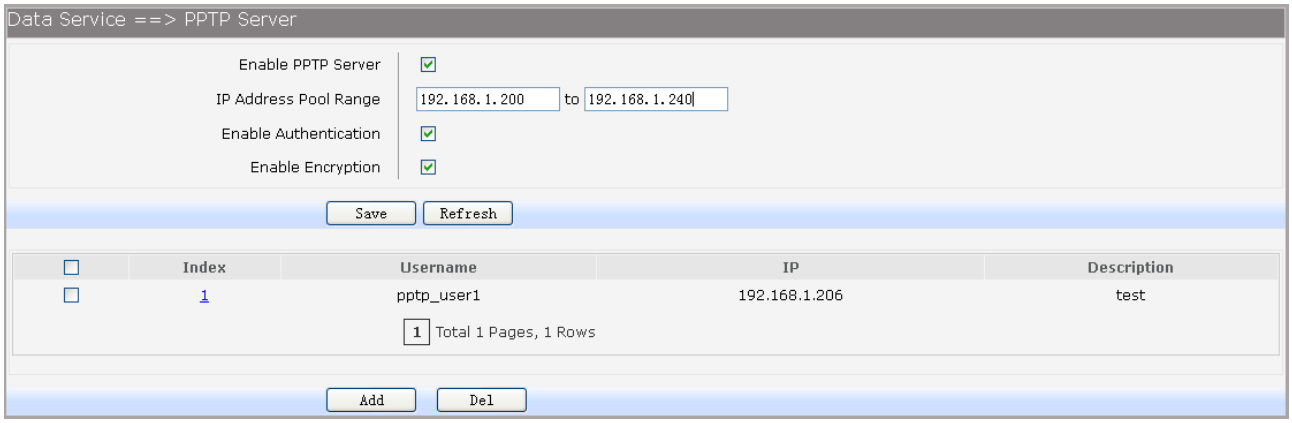


Figure 3-73 *Configure PPTP Server*

The following items are displayed on this screen:

► **Enable PPTP Server:** Enable or disable the PPTP server function globally.

► **IP Address Pool Range:** Specify the start and the end IP address for IP Pool. The start IP address should not exceed the end address and the IP ranges must not overlap.

► **Enable Authentication:** Specify whether to enable authentication for the tunnel.

► **Enable Encryption:** Specify whether to enable the encryption for the tunnel. If enabled, the PPTP tunnel will be encrypted by MPPE.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

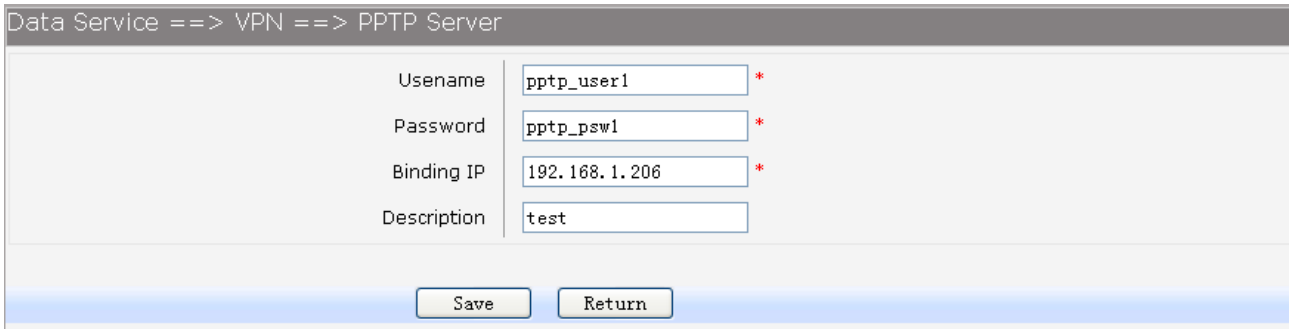


Figure 3-74 *Add or Modify PPTP Client Entry*

The following items are displayed on this screen:

► **Username:** Enter the account name of PPTP tunnel. It should be configured identically on server and client.

► **Password:** Enter the password of PPTP tunnel. It should be configured identically on server and client.

► **Binding IP:** Enter the IP address of the client which is allowed to connect to this PPTP server.

► **Description:** Enter the humane readable description for this account.

3.5.7.3 L2TP Server

Choose the menu **Data Service→VPN→L2TP Server** to load the following page.

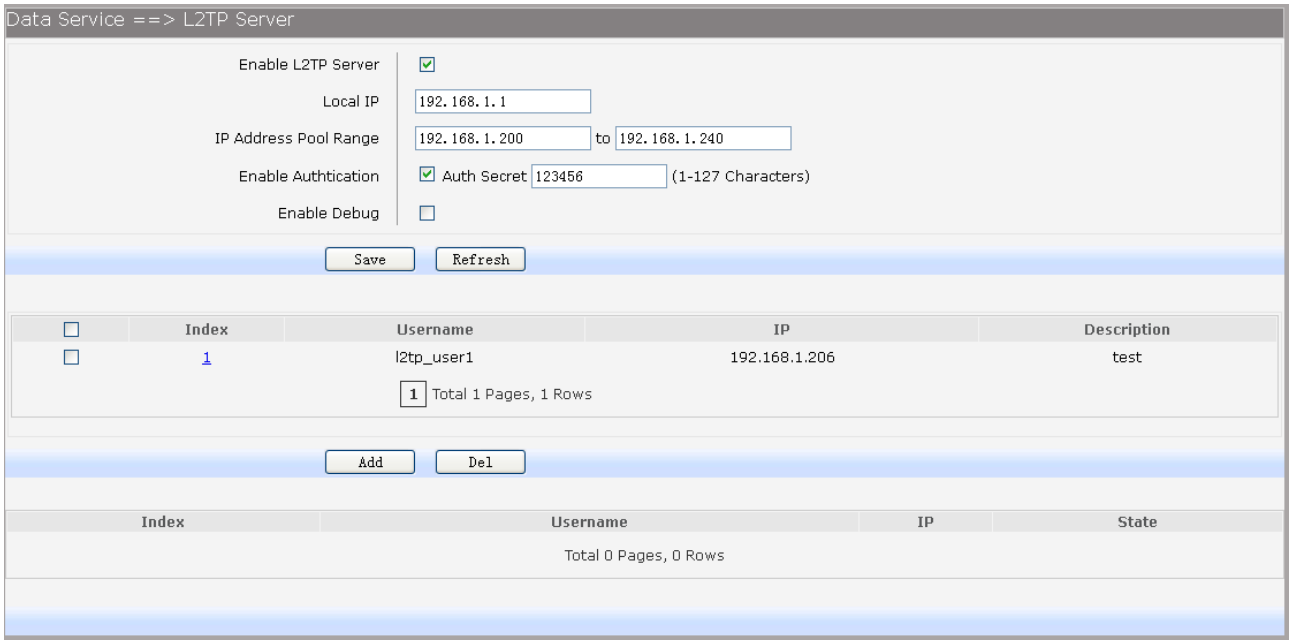


Figure 3-75 *Configure L2TP Server*

The following items are displayed on this screen:

- **Enable L2TP Server:** Enable or disable the L2TP server function globally.
- **Local IP:** Enter the local IP address of L2TP server.
- **IP Address Pool Range:** Specify the start and the end IP address for IP Pool. The start IP address should not exceed the end address and the IP ranges must not overlap.
- **Enable Authentication:** Specify whether to enable authentication for the tunnel. If enabled, enter the authentication secret.
- **Enable Debug:** Specify whether to enable the debug for L2TP.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

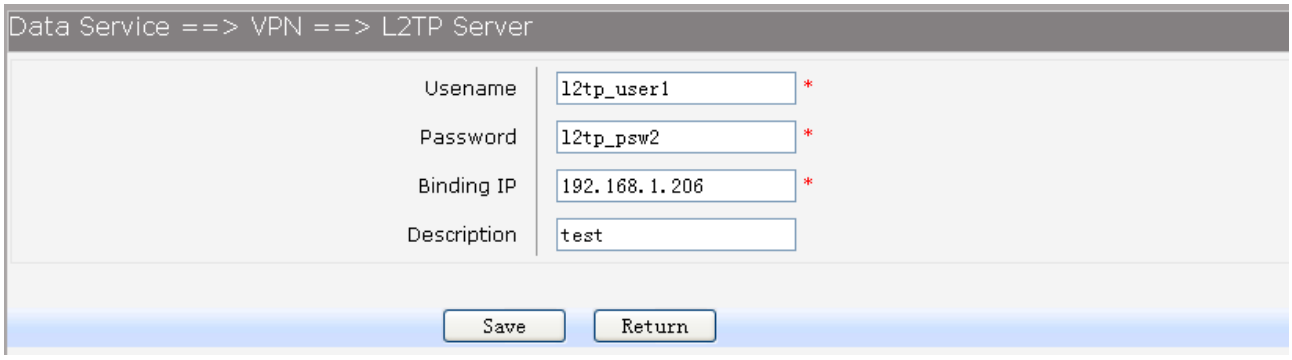


Figure 3-76 *Add or Modify L2TP Client Entry*

The following items are displayed on this screen:

► **Username:** Enter the account name of L2TP tunnel. It should be configured identically on server and client.

► **Password:** Enter the password of L2TP tunnel. It should be configured identically on server and client.

► **Binding IP:** Enter the IP address of the client which is allowed to connect to this L2TP server.

► **Description:** Enter the humane readable description for this account.

3.5.7.4 IPSEC

IPSEC (IP Security) is a set of services and protocols defined by IETF (Internet Engineering Task Force) to provide high security for IP packets and prevent attacks. To ensure a secured communication, the two IPSEC peers use IPSEC protocol to negotiate the data encryption algorithm and the security protocols for checking the integrity of the transmission data, and exchange the key to data de-encryption. IPSEC has two important security protocols, AH (Authentication Header) and ESP (Encapsulating Security Payload). AH is used to guarantee the data integrity. If the packet has been tampered during transmission, the receiver will drop this packet when validating the data integrity. ESP is used to check the data integrity and encrypt the packets. Even if the encrypted packet is intercepted, the third party still cannot get the actual information.

IKE: In the IPSEC VPN, to ensure a secure communication, the two peers should encapsulate and de-encapsulate the packets using the information both known. Therefore the two peers need to negotiate a security key for communication with IKE (Internet Key Exchange) protocols. Actually IKE is a hybrid protocol based on three underlying security protocols, ISAKMP (Internet Security Association and Key Management Protocol), Oakley Key Determination Protocol, and SKEME Security Key Exchange Protocol. ISAKMP provides a framework for Key Exchange and SA (Security Association) negotiation. Oakley describes a series of key exchange modes. SKEME describes another key exchange mode different from those described by Oakley. IKE consists of two phases. Phase 1 is used to negotiate the parameters, key exchange algorithm and encryption to establish an ISAKMP SA for securely exchanging more information in Phase 2. During phase 2, the IKE peers use the ISAKMP SA established in Phase 1 to negotiate the parameters for security protocols in IPSEC and create IPSEC SA to secure the transmission data.

3.5.7.4.1 IKE Safety Proposal

In this table, you can view the information of IKE Proposals.

Choose the menu **Data Service→VPN→IPSec→IKE Safety Proposal** to load the following page.

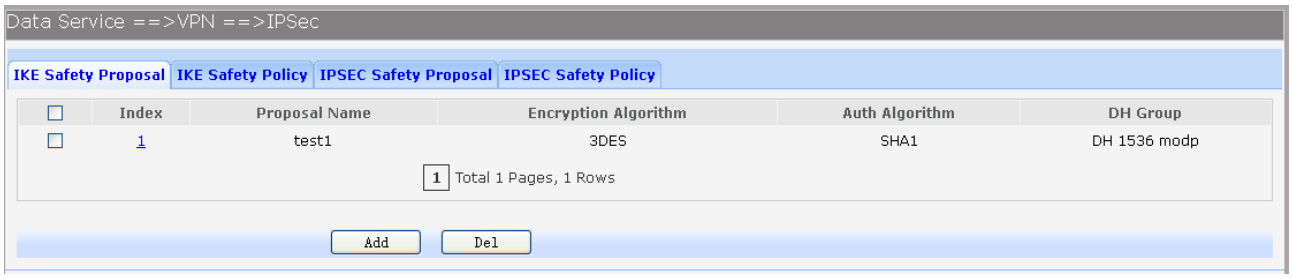


Figure 3-77 *View IKE Safety Proposal Configuration*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

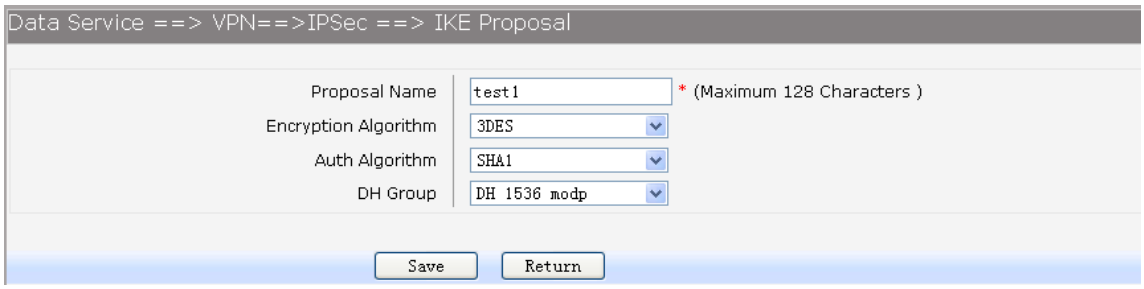


Figure 3-78 *Add or Modify IKE Safety Proposal Entry*

The following items are displayed on this screen:

► **Proposal Name:** Specify a unique name to the IKE proposal for identification and management purposes. The IKE proposal can be applied to IPSEC proposal.

► **Encryption Algorithm:** Specify the encryption algorithm for IKE negotiation. Options include:
DES: DES (Data Encryption Standard) encrypts a 64-bit block of plain text with a 56-bit key.
3DES: Triple DES, encrypts a plain text with 168-bit key.
AES: Uses the AES algorithm for encryption.

► **Auth Algorithm:** Select the authentication algorithm for IKE negotiation. Options include:
MD5: MD5 (Message Digest Algorithm) takes a message of arbitrary length and generates a 128-bit message digest.
SHA1: SHA1 (Secure Hash Algorithm) takes a message less than 2^64 (the 64th power of 2) in bits and generates a 160-bit message digest.

► **DH Group:** Select the DH (Diffie-Hellman) group to be used in key negotiation phase 1. The DH Group sets the strength of the algorithm in bits. Options include **DH 768 modp**, **DH 1024 modp** and **DH 1536 modp**.

3.5.7.4.2 IKE Safety Policy

In this table, you can view the information of IKE Policy.

Choose the menu Data Service→VPN→IPSec→IKE Safety Policy to load the following page.

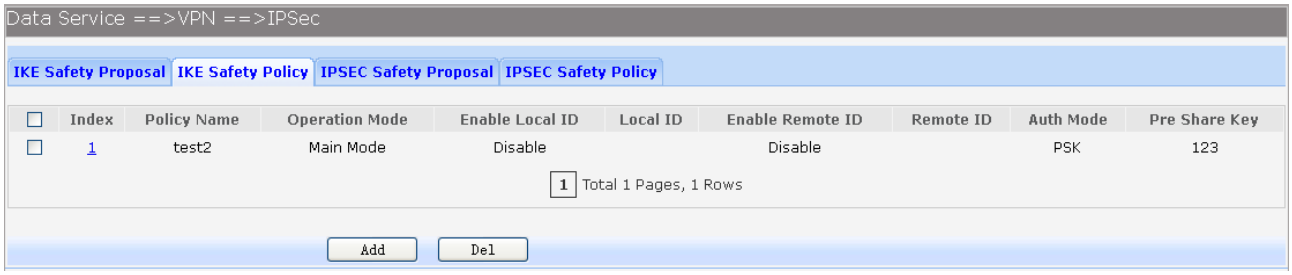


Figure 3-79 *View IKE Safety Policy Configuration*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

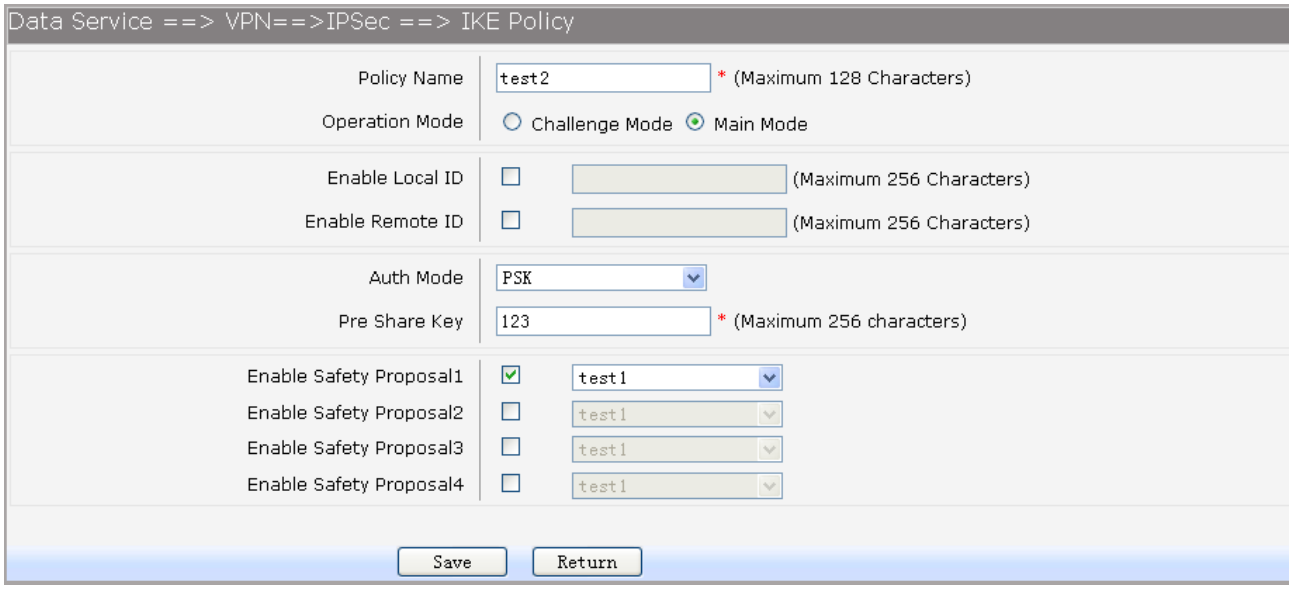


Figure 3-80 *Add or Modify IKE Safety Policy Entry*

The following items are displayed on this screen:

► **Policy Name:** Specify a unique name to the IKE policy for identification and management purposes. The IKE policy can be applied to IPSEC policy.

► **Operation Mode:** Select the IKE Exchange Mode in phase 1, and ensure the remote VPN peer uses the same mode.

Main: Main mode provides identity protection and exchanges more information, which applies to the scenarios with higher requirement for identity protection.

Challenge: Challenge Mode establishes a faster connection but with lower security, which applies to scenarios with lower requirement for identity protection.

► **Enable Local ID:** If enabled, enter a name for the local device as the ID in IKE negotiation.

► **Enable Remote ID:** If enabled, enter the name of the remote peer as the ID in IKE negotiation.

► **Auth Mode:** Select the authentication mode for this IKE policy entry.

PSK:

Certificate:

► **Pre Share Key:** Enter the Pre-shared Key for IKE authentication, and ensure both the two peers use the same key. The key should consist of visible characters without blank space.

► **Enable Safety Proposal:** Select the Proposal for IKE negotiation phase 1. Up to four proposals can be selected.

3.5.7.4.3 IPSEC Safety Proposal

In this table, you can view the information of IPSEC proposal.

Choose the menu **Data Service→VPN→IPSec→IPSEC Safety Proposal** to load the following page.

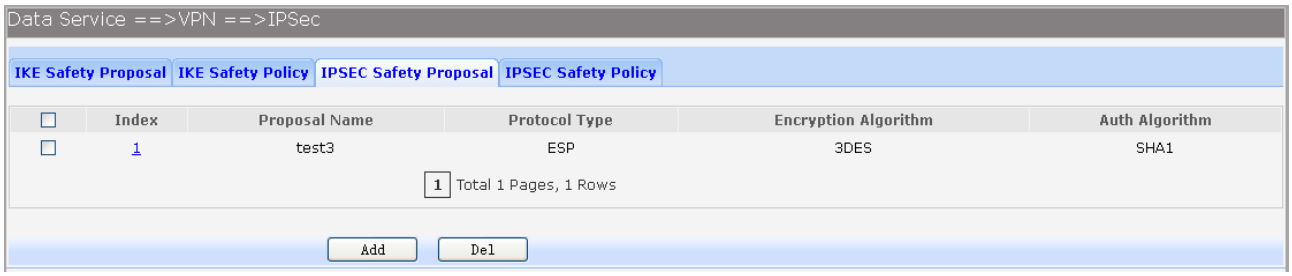


Figure 3-81 *View IPSEC Safety Proposal Configuration*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

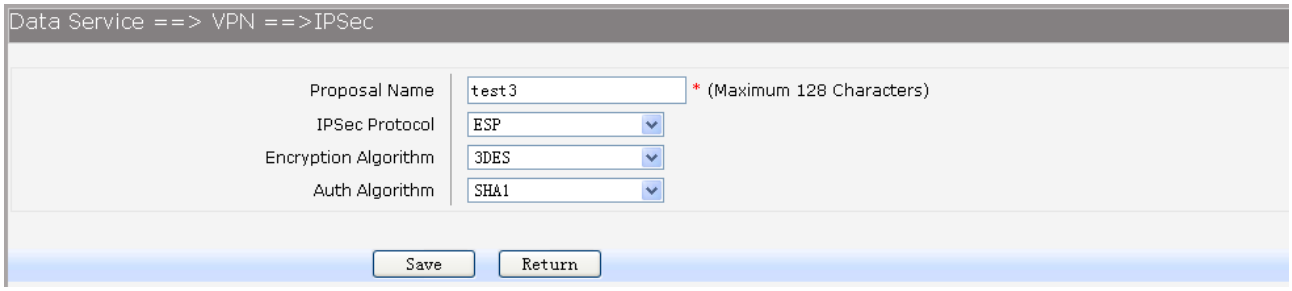


Figure 3-82 *Add or Modify IPSEC Safety Proposal Entry*

The following items are displayed on this screen:

► **Proposal Name:** Specify a unique name to the IPSEC Proposal for identification and management purposes. The IPSEC proposal can be applied to IPSEC policy.

► **IPSec Protocol:** Select the security protocol to be used. Options include:

AH: AH (Authentication Header) provides data origin authentication, data integrity and anti-replay services.

ESP: ESP (Encapsulating Security Payload) provides data encryption in addition to origin authentication, data integrity, and anti-replay services.

ESP+AH: Both ESP and AH security protocol.

► **Encryption Algorithm:** Select the algorithm used to encrypt the data for ESPencryption. Options include:

DES: DES (Data Encryption Standard) encrypts a 64-bit block of plain text with a 56-bit key. The key should be 8 characters.

3DES: Triple DES, encrypts a plain text with 168-bit key. The key should be 24 characters.

AES: Uses the AES algorithm for encryption. The key should be 16 characters.

► **Auth Algorithm:** Select the algorithm used to verify the integrity of the data. Options include:

MD5: MD5 (Message Digest Algorithm) takes a message of arbitrary length and generates a 128-bit message digest.

SHA: SHA (Secure Hash Algorithm) takes a message less than the 64th power of 2 in bits and generates a 160-bit message digest.

3.5.7.4.4 IPSEC Safety Policy

In this table, you can view the information of IPSEC policy.

Choose the menu **Data Service→VPN→IPSec→IPSEC Safety Policy** to load the following page.

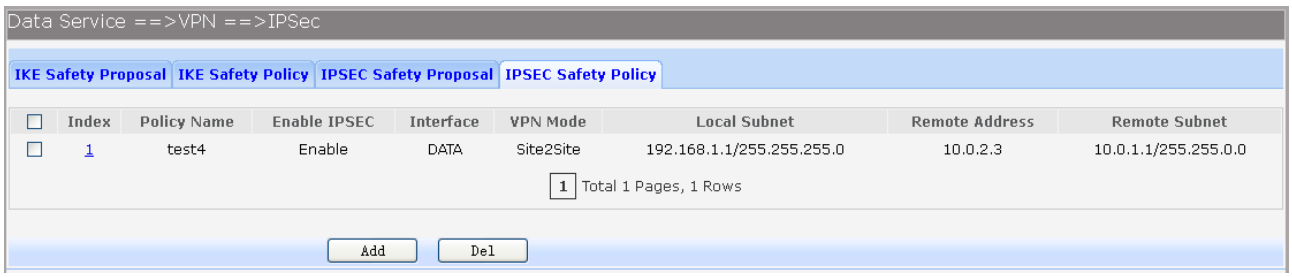


Figure 3-83 *View IPSEC Safety Policy Configuration*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

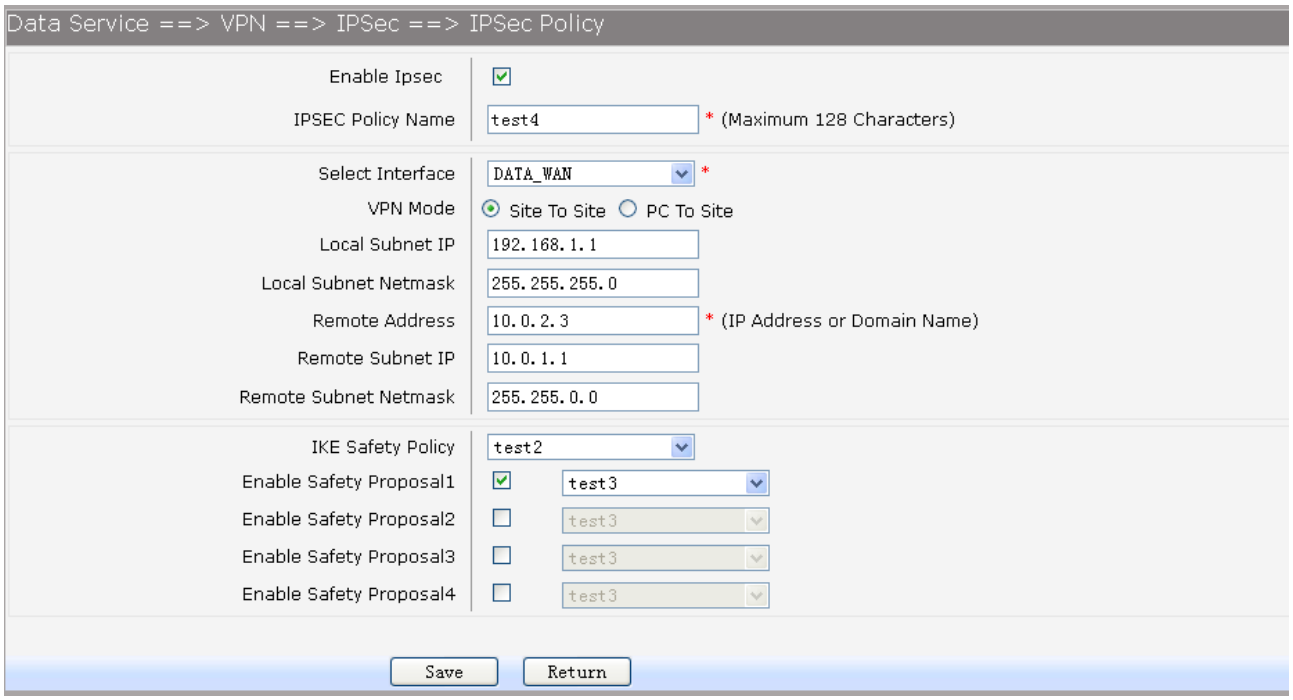


Figure 3-84 *Add or Modify IPSEC Safety Policy Entry*

The following items are displayed on this screen:

- **Enable Ipsec:** Enable or disable this IPSEC entry.
- **IPSEC Policy Name:** Specify a unique name to the IPSEC policy.
- **Select Interface:** Specify the local WAN port for this Policy.
- **VPN Mode:** Select the network mode for IPSEC policy. Options include:
  Site To Site: Select this option when the client is a network.
  PC to Site: Select this option when the client is a host.
- **Local Subnet IP & Local Subnet Netmask:** Specify IP address range on your local LAN to identify which PCs on your LAN are covered by this policy.
- **Remote Address:** If **PC to Site** is selected, specify IP address on your remote network to identify which PCs on the remote network are covered by this policy.
- **Remote Subnet IP & Remote Subnet Netmask:** Specify IP address range on your remote network to identify which PCs on the remote network are covered by this policy.
- **IKE Safety Policy:** Specify the IKE policy. If there is no policy selection, add new policy on **VPN→IPSec→IKE Safety Policy** page.
- **Enable Safety Prososal: If enabled,** Select IPSEC Proposal. If there is no policy selection, add new IPSEC proposal on **VPN→IPSec→IPSEC Safety Proposal** page. Up to four IPSEC Proposals can be selected.

3.5.8 Routing

3.5.8.1 Static Route

3.5.8.1.1 IPv4

Choose the menu **Data Service→Routing→Static Route→IPv4** to load the following page.

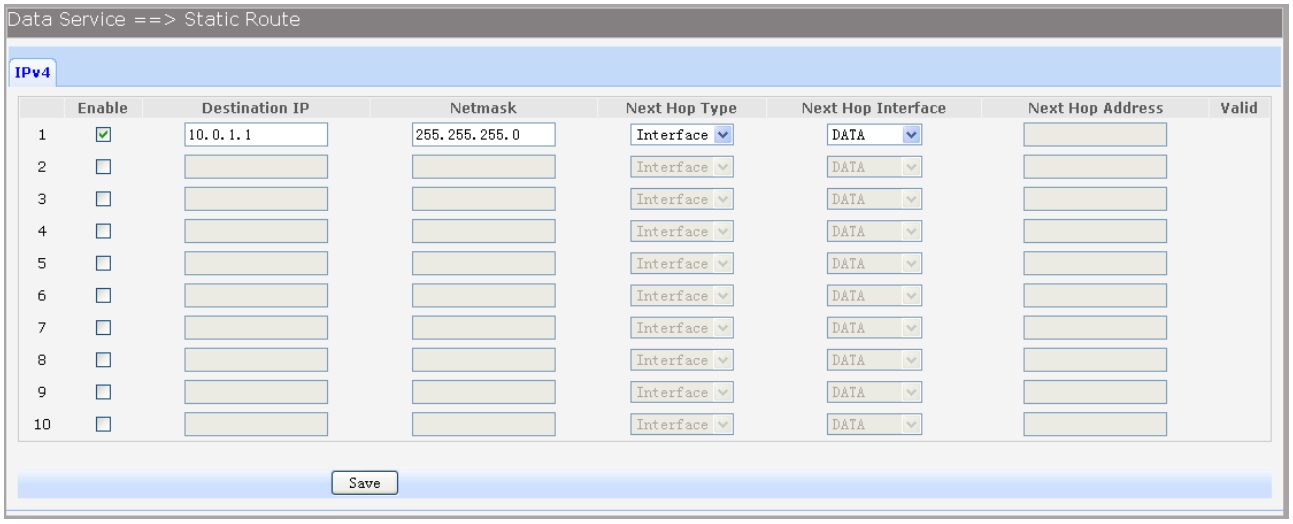


Figure 3-85 *Configure IPv4 Static Route*

The following items are displayed on this screen:

► **Enable:** Select it to add and modify the current route. Conversely, disable the current route.

► **Destination IP:** Enter the destination host the route leads to.

► **Netmask:** Enter the Subnet mask of the destination network.

► **Next Hop Type:** Include **Next Hop Interface** and **Next Hop Address**(see following option)

► **Next Hop Interface:** Specify the interface of next hop for current route

► **Next Hop Address:** Specify the address of next hop for current route

► **Valid:** Show the status of current route.

3.5.8.1.2 IPv6

The menu IPV6 is hidden if you don't enable Ipv6 stack, please refer to configuration index **Network→IPv6** for detail setting.

Choose the menu **Data Service→Route→Static Route→IPv6** to load the following page.

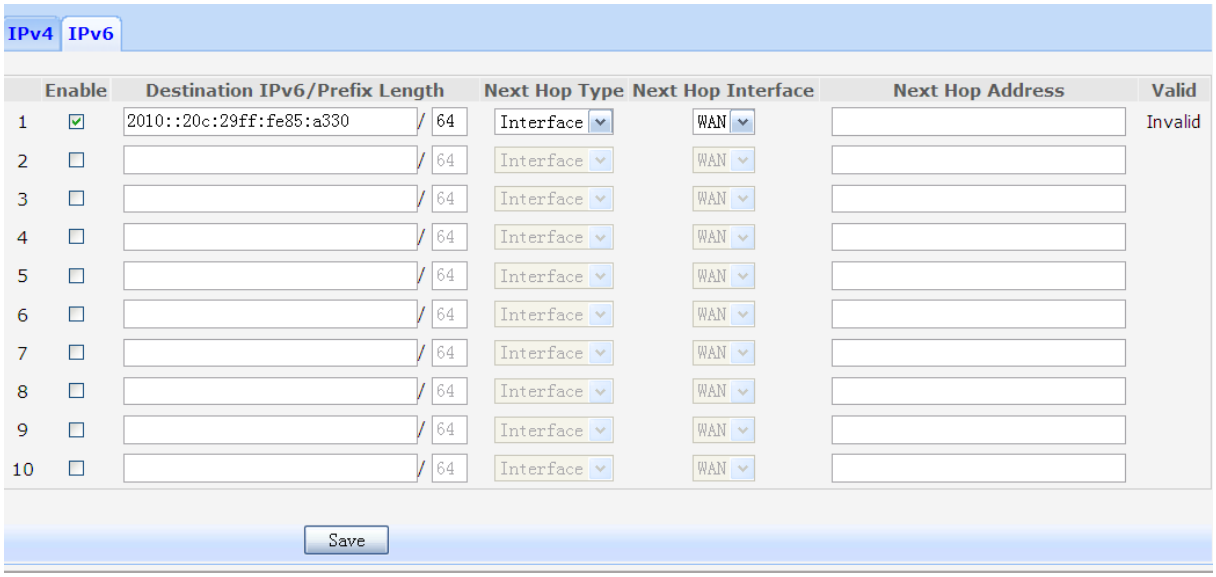


Figure 3-86 *Configure IPv6 Static Route*

The configuration options of Ipv6 is similar to Ipv4, the prefix length is equal to mask of Ipv4 address.

3.5.8.2 Policy Route

Choose the menu **Data Service→Route→Policy Route** to load the following page.

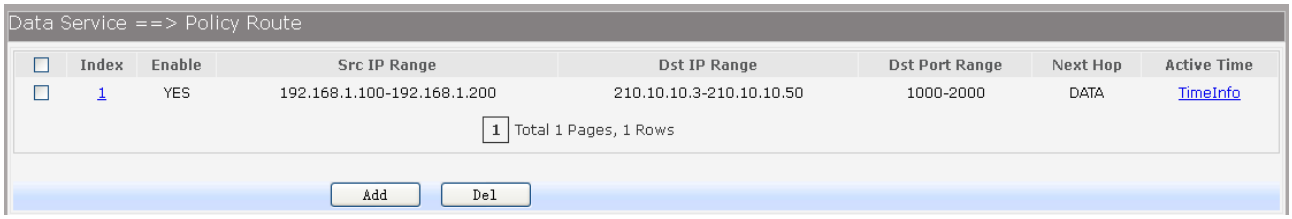


Figure 3-87 *View Policy Route*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

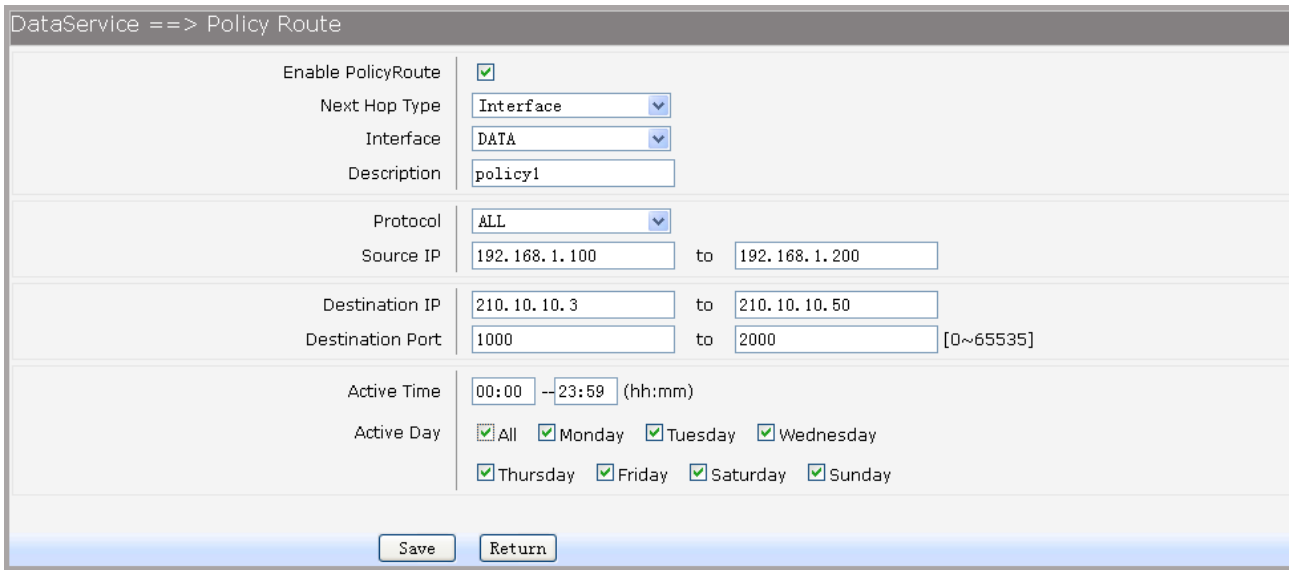


Figure 3-88 *Add or Modify Policy Route*

The following items are displayed on this page:

- **Enable PoliceRoute:** Enable or disable the entry
- **Next Hop Type:** Select from pull-down list: **Interface, Address.**
- **Interface:** Specify the interface of next hop for the entry.
- **Address:** Specify the address of next hop for the entry.
- **Description:** Give description for the entry.
- **Protocol:** Specify the protocol, **TCP**, **UDP** or **ALL**.
- **Source IP:** Enter IP address or IP range of source in the rule entry.
- **Destination IP:** Enter IP address or IP range of destination in the rule entry.
- **Destination Port:** Specify port or port range of destination in the rule entry.
- **Active Time:** Specify the active time range for the rule entry.
- **Active Day:** Specify the active days for the rule entry.

3.5.8.3 RIP

The **Routing Information Protocol (RIP)** is one of the oldest distance-vector routing protocols, which employs the hop count as a routing metric.

3.5.8.3.1 RIP Service

Choose the menu **Data Service→RIP→RIP Service** to load the following page.

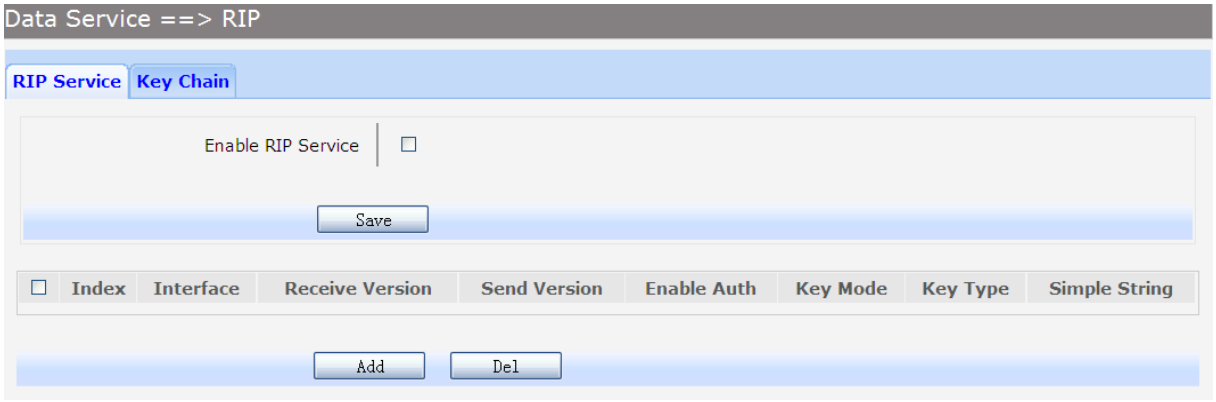


Figure 3-89 *RIP Service Configuration*

The following items are displayed on this page:

► **Enable RIP Service:** Enable or disable RIP service function globally.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

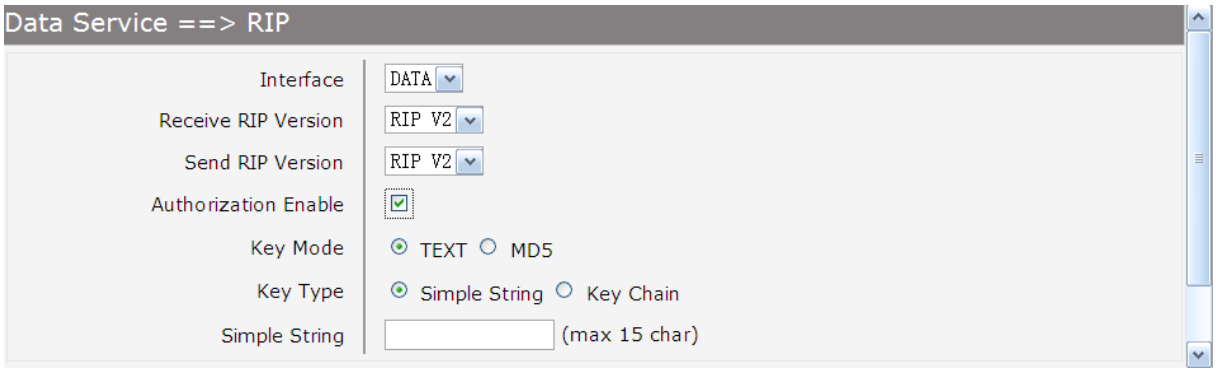


Figure 3-90 *Add or Modify RIP Service Entry*

The following items are displayed on this page:

► **Interface:** Specify the interface for the entry.

► **Receive RIP Version:** Specify receiving RIP version for the entry.

► **Send RIP Version:** Specify sending RIP version for the entry.

► **Authorization Enable:** Check the box to enable authorization.

► **Key Mode:** Specify the encryption mode of key, **TEXT**(plaintext),**MD5**(cipertext).

► **Key Type:** Specify the key from **Simple String** or **Key Chain**.

► **Simple String:** If select Simple String in item of Key Type, enter simple string as key.

3.5.8.3.2 Key Chain

Key Chain is a chain of keys used as RIP authorization key.

Choose the menu **Data Service→RIP→Key Chain** to load the following page.

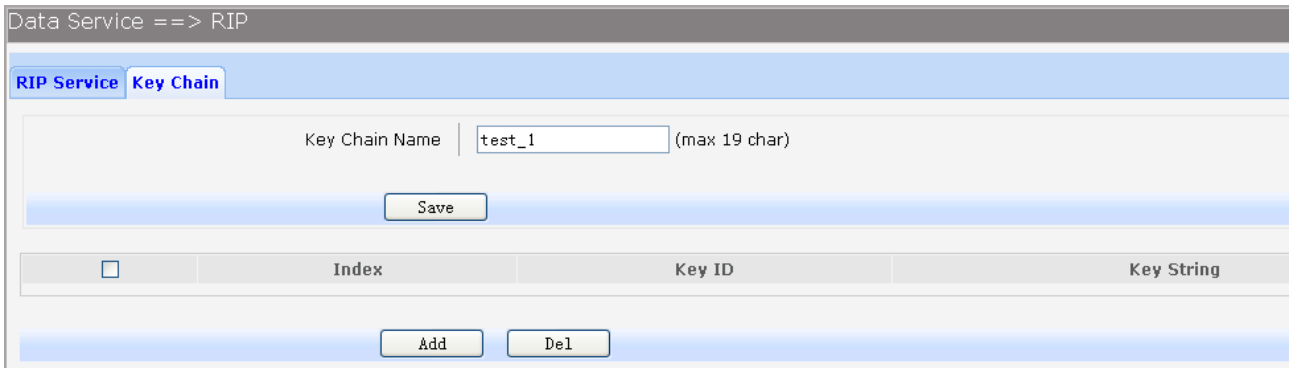


Figure 3-91 *View RIP Key Chain Configuration*

The following items are displayed on this page:

► **Key Chain Name:** Enter the name of key chain.

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.

Click the **Add** button to add a new entry.

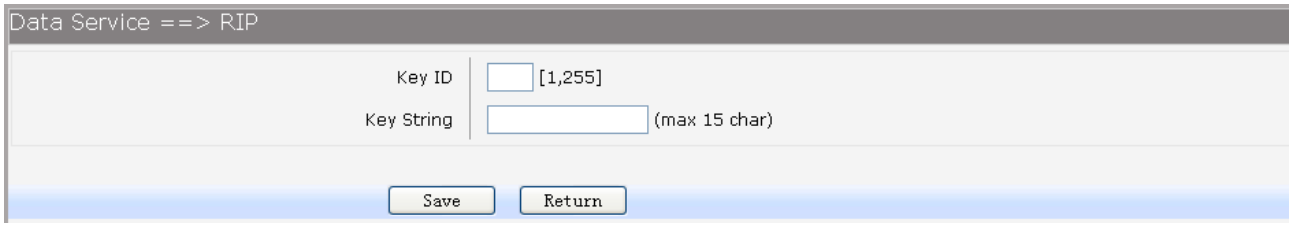


Figure 3-92 *Add or Modify RIP Key Chain Entry*

The following items are displayed on this page:

► **Key ID:** Enter the ID of the entry.

► **Key String:** Enter the Key of the entry.

3.5.9 Advanced Parameters

3.5.9.1 UPnP Parameter

The Universal Plug and Play (UPnP) technology is enabling a world in which music and other digital entertainment content is accessible from various devices in the home without regard for where the media is stored. Using UPnP devices the whole family can share in the fun together whether it's:

- Viewing your best family photos via the TV
- Watching home videos
- Listening to favorite tunes throughout the house

The **Digital Living Network Alliance (DLNA)** is a non-profit collaborative trade organization established by Sony in June 2003, which is responsible for defining

interoperability guidelines to enable sharing of digital media between multimedia devices. DLNA uses UPnP for media management, discovery and control.
Here, UPNP mainly for DLNA, DLNA server can be automatically discovered by sending NOTIFY via Multicast, and DLNA clients can search DLNA servers by sending M-SEARCH via Multicast.
Choose the menu **Data Service→Advanced Parameters→UPnp Parameter** to load the following page.

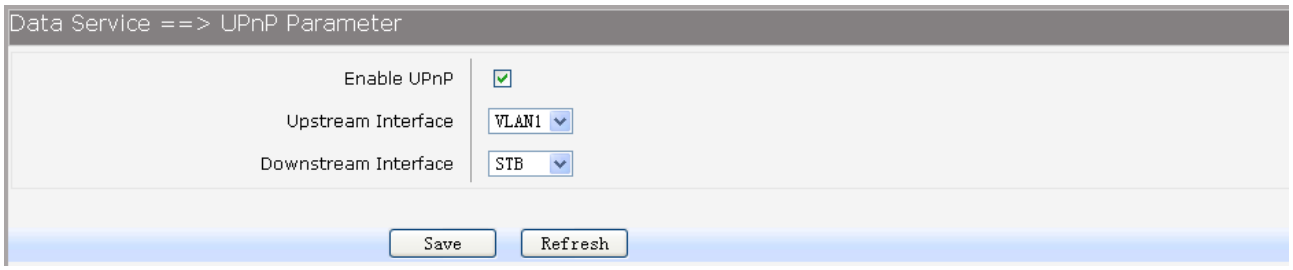


Figure 3-93 *Configure UPnp*

The following items are displayed on this screen:
► **Enable UPnP:** Enable or disable the UPnP function globally.
► **Upstream Interface:** The network interface connected to the DLNA server.
► **Downstream Interface:** The network interface connected to the DLNA client.

3.5.10 Multicast

Choose the menu **Data Service→Multicast** to load the following page.

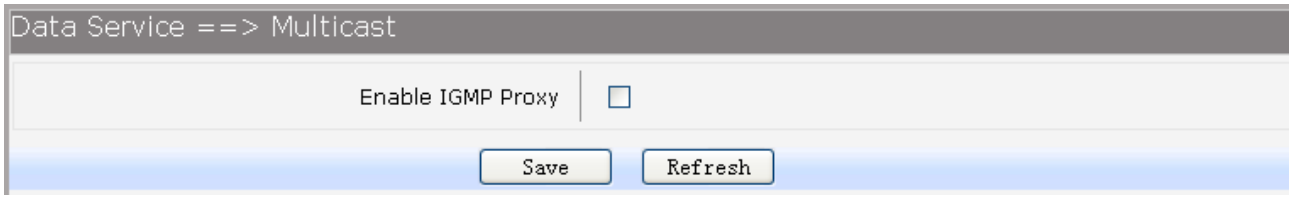


Figure 3-94 *Configure Multicast*

The following items are displayed on this screen:
► **Enable IGMP Proxy:** Enable or disable the IGMP proxy function globally. Currently, IGMP proxy is mainly used for IPTV.

3.5.11 USB Storage

USB Storage function let Windows OS share files of USB storage mounted on embedded device by Samba and ftp.

1) User Management

Manage the list of users which access USB storage.
Choose menu **Data Service→USB Storage** to load the following page.

Figure 3-95 *View User Management Configuration*

Click the **Index** in the entry you want to modify. If you want to delete the entry, select it and click the **Del**.
Click the **Add** button to add a new entry.

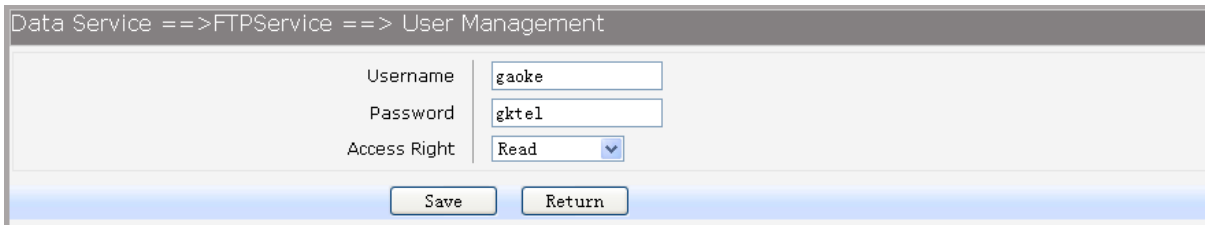


Figure 3-96 *Add or Modify User Management Entry*

The following items are displayed on this screen:
► **Username:** Enter user name of this entry.
► **Password:** Enter password of this entry.
► **Access Right:** Select access right from pull-down list, **Read** or **Read/Write**.

2) USB Storage

Scan the partitions of USB Storage by click **Rescan** button and umount specified partition by clicking **Umount** button. Click **start** to start service, click **stop** to stop service.

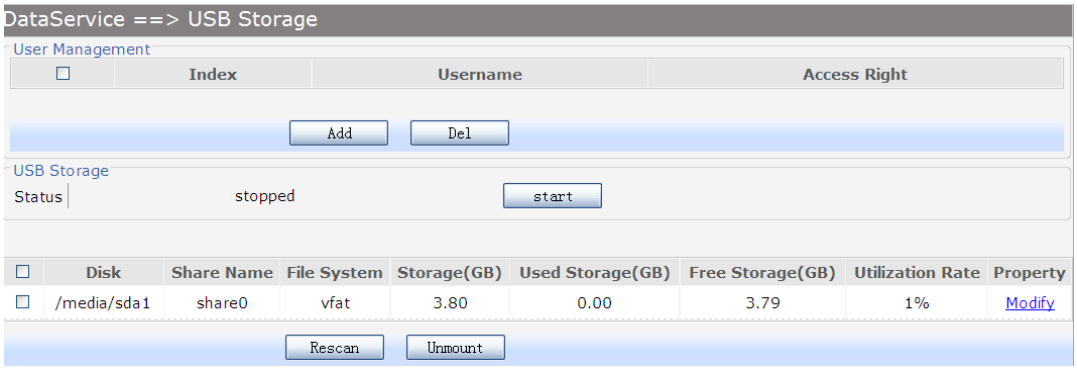


Figure 3-97 *View USB Storage*

Click **Modify** to load the following page:

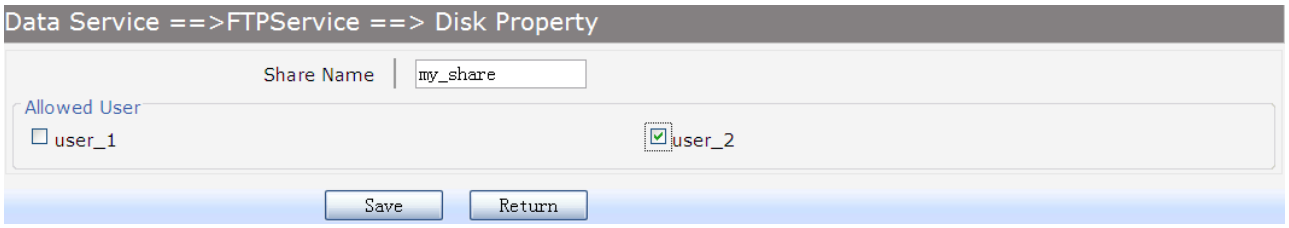


Figure 3-98 *Modify USB Storage*

The following items are displayed on this screen:

► **Share Name:** Enter the share name.

► **Allowed User:** Select the users need to access the partition of the entry.

3.6 System

3.6.1 Time Management

Menu of time management is used to manage system time.

1) Manual Configuration

Choose the menu **Data Service→Time Management** and select **Manual Configuration** to load the following page.

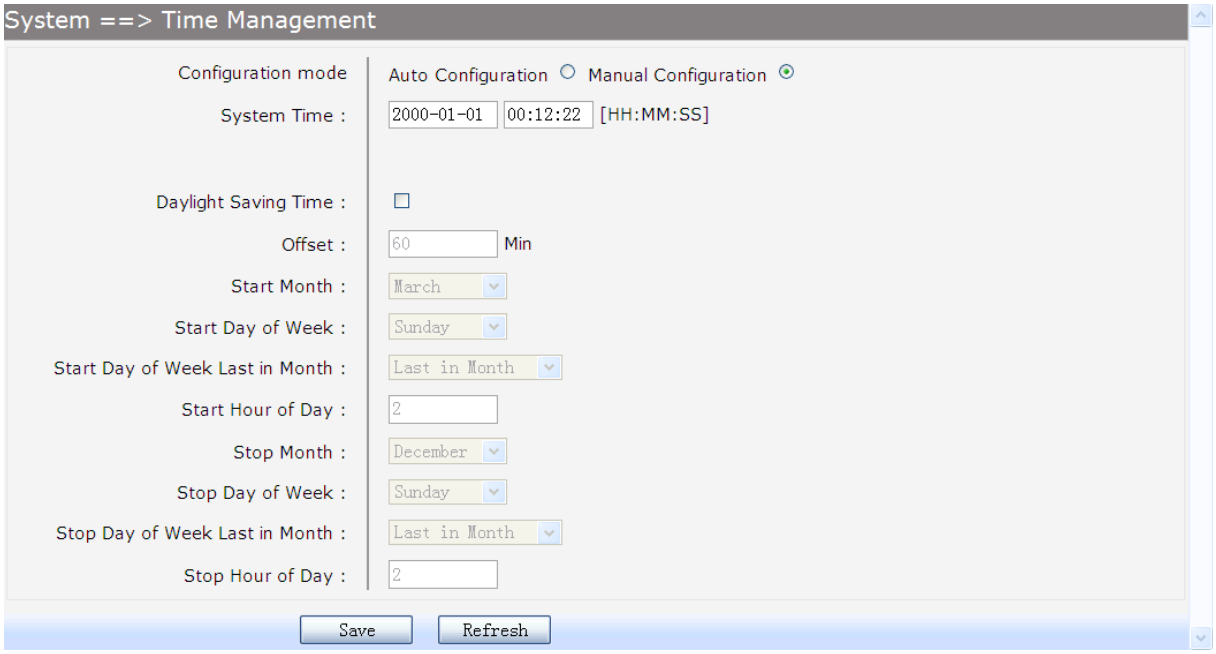


Figure 3-99 *Time Manual Configuration*

The following items are displayed on this screen:

► **Configuration mode:** Specify configuration mode of time, **Auto Configuration** or **Manual Configuration**, default is **Manual Configuration.**

► **System Time:** Enter the system time under **Manual Configuration.**
► **Daylight Saving Time:** Enable or disable the Daylight Saving Time(DST).
► **Offset:** Enter the offset of DST.
► **Start Month:** Specify the start month of DST, range from 1 to 12 in one year.
► **Start Day of Week:** Specify the start weekday of DST, range from Sunday to Saturday.
► **Start Day of Week Last in Month:** Specify the order of start weekday in the month from pull-down list as following:

- **First in Month**
- **Second in Month**
- **Third in Month**
- **Fourth in Month**
- **Last in Month**

► **Start Hour of Day:** Specify the start hour of DST, range from 0 to 23 in one day.
► **End Month:** Specify the end month of DST, range from 1 to 12 in one year.
► **End Day of Week:** Specify the end weekday of DST, range from Sunday to Saturday.
► **End Day of Week Last in Month:** Specify the order of end weekday in the month, similar as **Start Day of Week Last in Month**.
► **End Hour of Day:** Specify the end hour of DST, range from 0 to 23 in one day.

2) Auto Configuration

Choose **Auto Configuration** to load the following page:

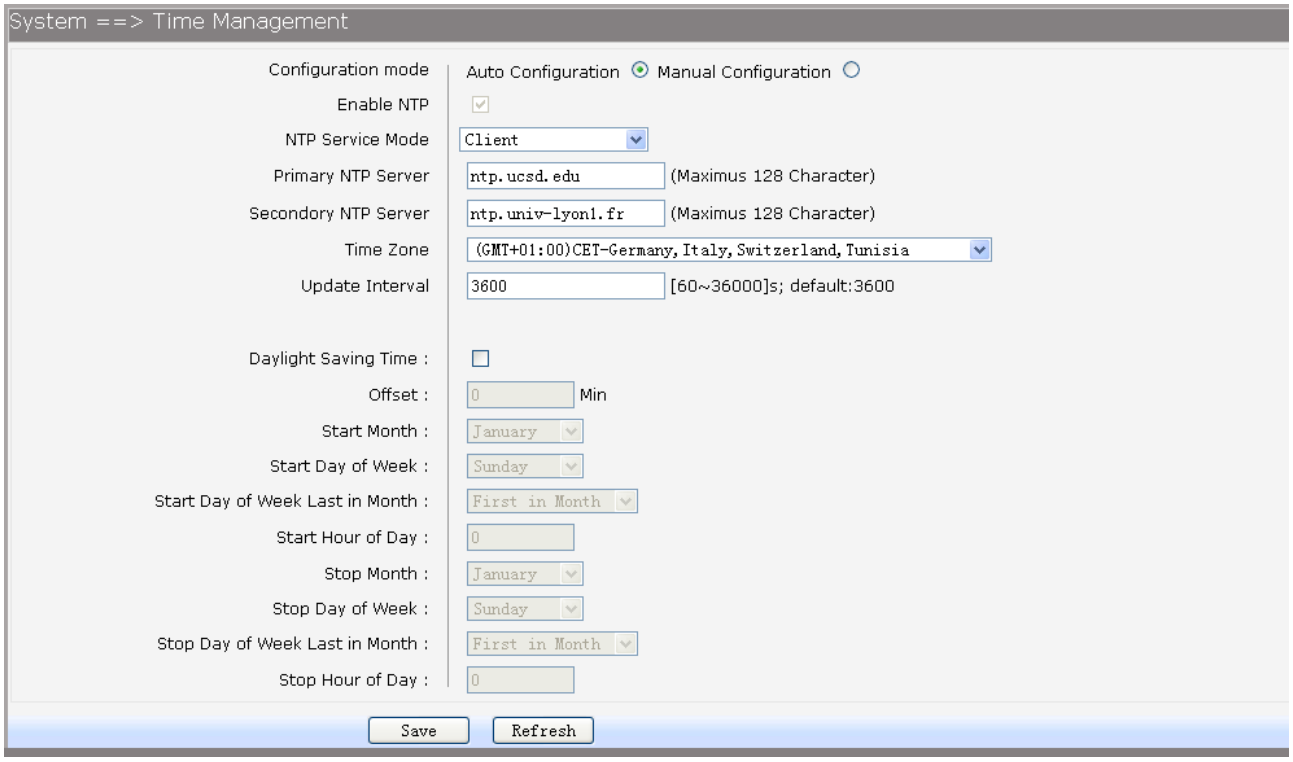


Figure 3-100 *Time Auto Configuration*

The following items are displayed on this screen:

► **Enable NTP:** Enable or disable NTP service.
► **NTP Service Mode:** Specify CPE role as NTP Client or both Client and Server.
► **Primary NTP Server:** Specify the primary NTP server for role as NTP client.
► **Second NTP Server:** Specify the second NTP server for role as NTP client.
► **Time Zone:** Enter the local time zone.
► **Update Interval:** Specify update interval for role as NTP client.

3.6.2 Export Configuration

Configuration exporting via WEB interface is available. Click the "**Export Configuration File**" to export the configuration file.
Web interface configuration index: **System→Upgrade→(Configuration)**.

3.6.3 Reboot System

Choose menu"**System →Reboot**", then click **Reboot** button to reset the device.

3.6.4 Backup/Restore

Choose the menu **System→Backup/Restore** to load the following page.

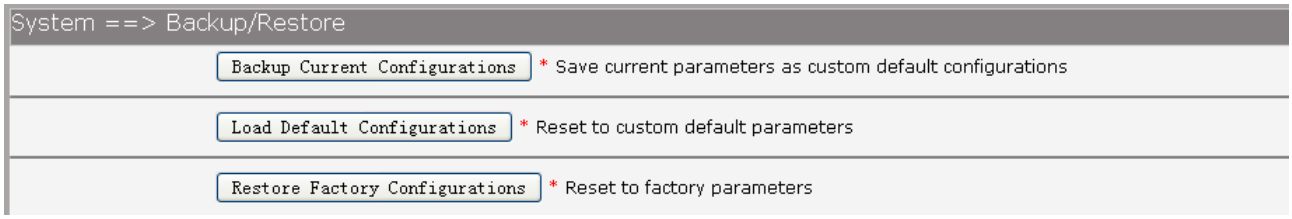

System ==> Backup/Restore
Backup Current Configurations
* Save current parameters as custom default configurations
Load Default Configurations
* Reset to custom default parameters
Restore Factory Configurations
* Reset to factory parameters

Figure 3-101 *Backup/Restore Configurations*

The following items are displayed on this screen:

► **Backup Current Configurations:** Save current parameters as customer default parameters.

► **Load Default Configurations:** To reset to customer default parameters.

► **Restore Factory Configurations:** To reset to factory parameters.

3.6.5 Diagnostic

3.6.5.1 Ping

Choose menu "**System→Diagnostic→Ping**", and then you can use **Ping** function to check connectivity of your network in the following screen.

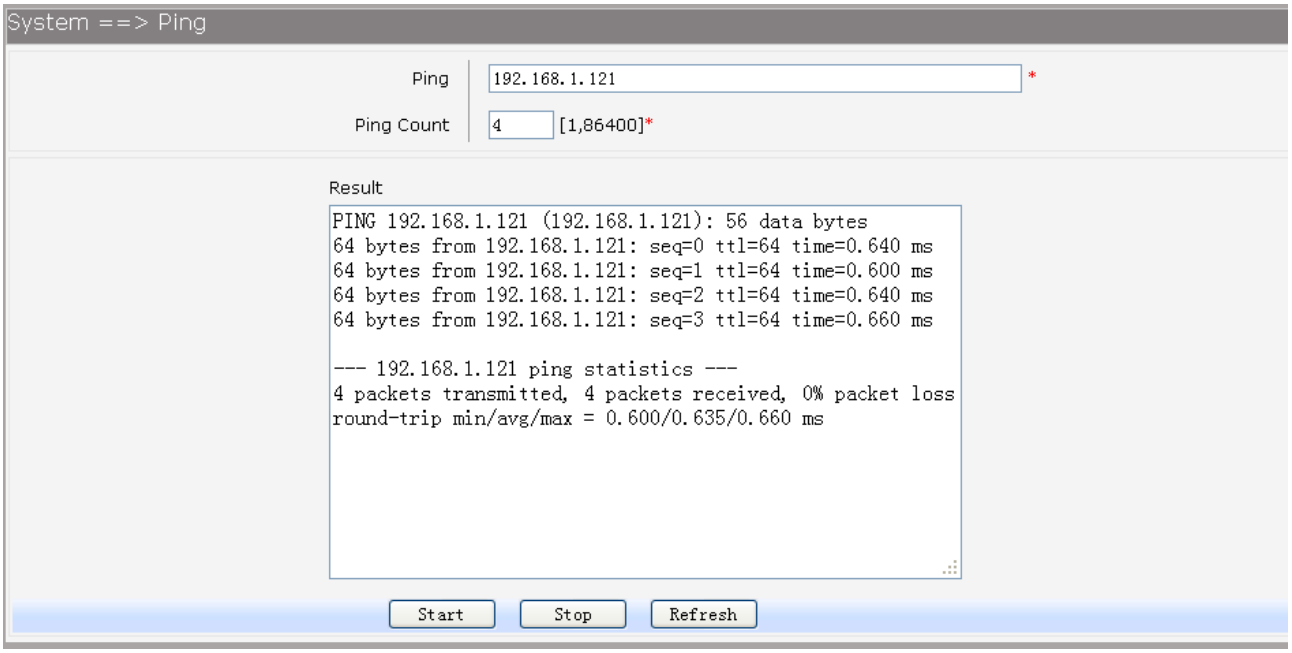


Figure 3-102 *Ping Diagnostic*

The following items are displayed on this screen:

► **Ping:** Enter the IP Address or Domain Name of the PC whose connection you wish to diagnose.

► **Ping Count:** Specifies the number of Echo Request messages sent.

► **Result:** This page displays the result of diagnosis.

Click **Start** button to check the connectivity of the Internet.

Click **Stop** button to stop sending the Echo Request messages.

Click **Refresh** button to refresh the web page.

3.6.5.2 Tcpdump

You can use tcpdump tool to capture the packets, and show the result of capture packets.

Choose the menu **System→Diagnostic→Tcpdump** to load the following page.

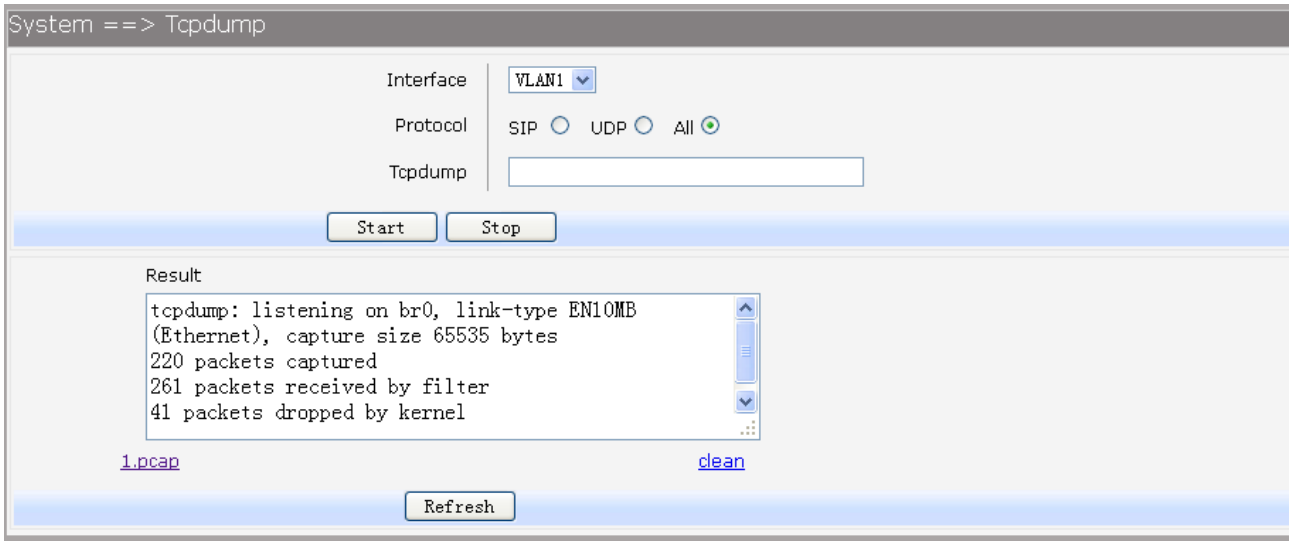


Figure 3-103 *Tcpdump Diagnostic*

The following items are displayed on this screen:

► **Interface:** By selecting the interface, only packets through this interface will be captured.

► **Protocol:** By selecting the protocol, only packets of this protocol will be captured.

► **Tcpdump:** Enter some options of tcpdump(e.g. -n -s0 -c 100**)**

► **Result:** This page displays the result of capture packets.

Click **Start** button to capture the packets which correspond to the configuration requirement.

Click **Stop** button to stop capturing the packets.

Click "***.pcap**" to open or download the capture packets file.

Click "**clean**" to delete all the packets file.

Click **Refresh** button to refresh the web page.

3.6.5.3 WAN Speed Test

Test the download speed and upload speed of WAN interface, and show the result on the web page.

Choose the menu **System→Diagnostic→WAN Speed Test** to load the following page.

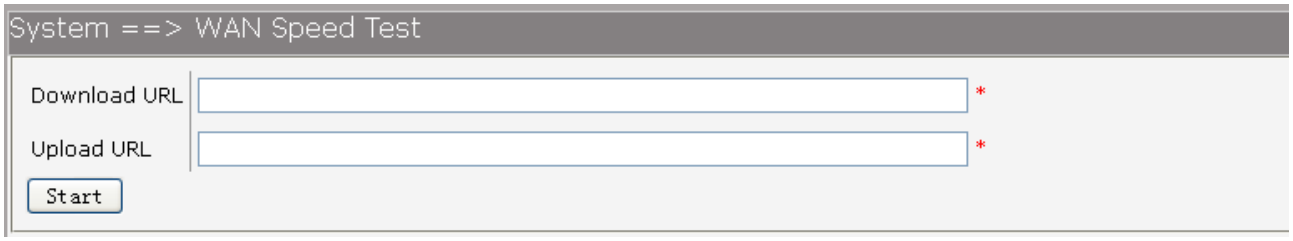


Figure 3-104 *WAN Speed Test*

The following items are displayed on this screen:

► **Download URL:** Enter the URL to test the download speed of WAN. For example http://speedtest1.szunicom.com/speedtest/random1000x1000.jpg

► **Upload URL:** Enter the URL to test the upload speed of WAN. For example http://speedtest1.szunicom.com/speedtest/random2000x2000.jpg

Click the **Start** button to starting test.

3.6.6 User Management

You can change the factory default user password of the device.

Choose the menu **System→User Management** to load the following page.

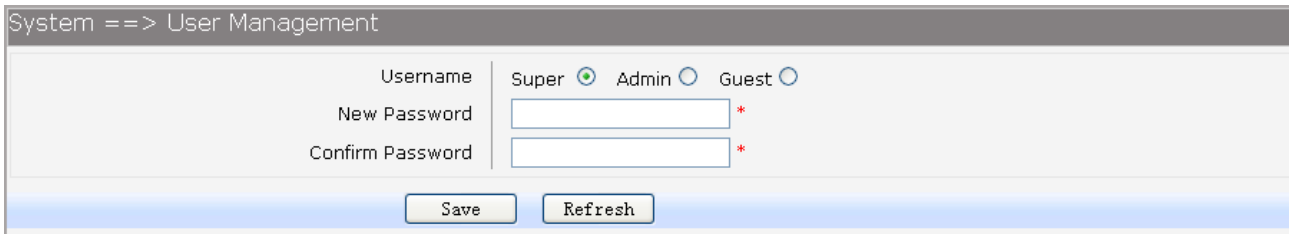


Figure 3-105 *User Management*

The following items are displayed on this screen:

► **Username:** You can select the user with different permissions. However, you can not select the user whose permission is higher than your permission.

► **New Password:** Enter the new password for specified user, not more than 32 characters, and the space is not supported.

► **Confirm Password:** Enter the new password again to confirm for specified user, not more than 32 characters, and the space is not supported.

Click the **Save** button when finished.

3.6.7 System Log

3.6.7.1 Log Config

Choose the menu **System→System Log→Log Config** to load the following page.

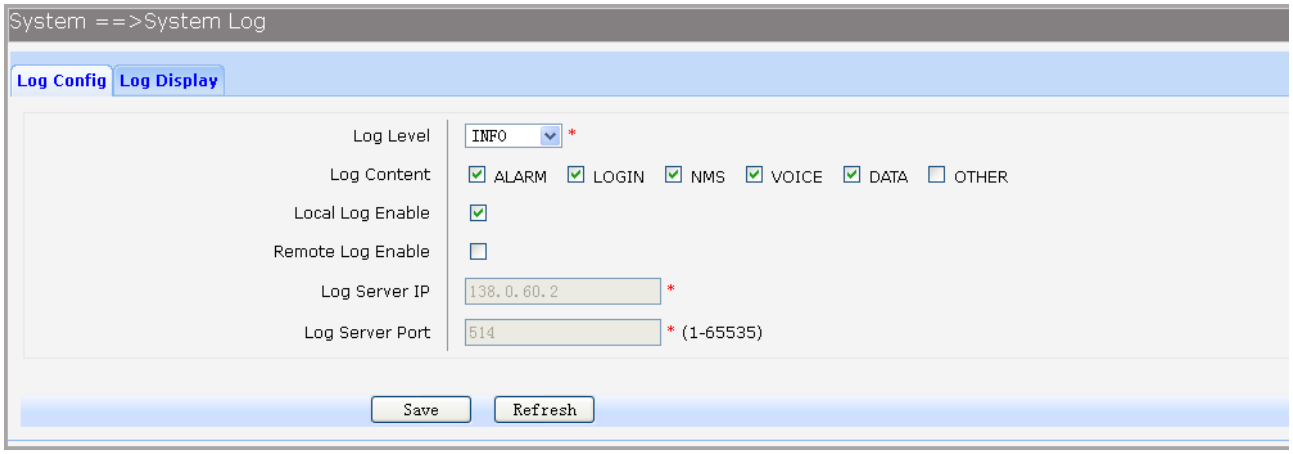


Figure 3-106 *Configure System Log*

The following items are displayed on this screen:

► **Log Level:** By selecting the log level, only logs of this level will be shown.

► **Log Content:** By selecting the log content, only logs of selected content will be shown.

► **Local Log Enable:** Check this box to enable local log function.

► **Remote Log Enable:** Check this box to enable remote log function, the logs will be send to the Log Server.

► **Log Server IP:** Enter the IP address of the Log Server.

► **Log Server Port:** Enter the port that Log service used.

Click the **Save** button when finished.

3.6.7.2 Log Display

Choose the menu **System→System Log→Log Display** to load the following page.

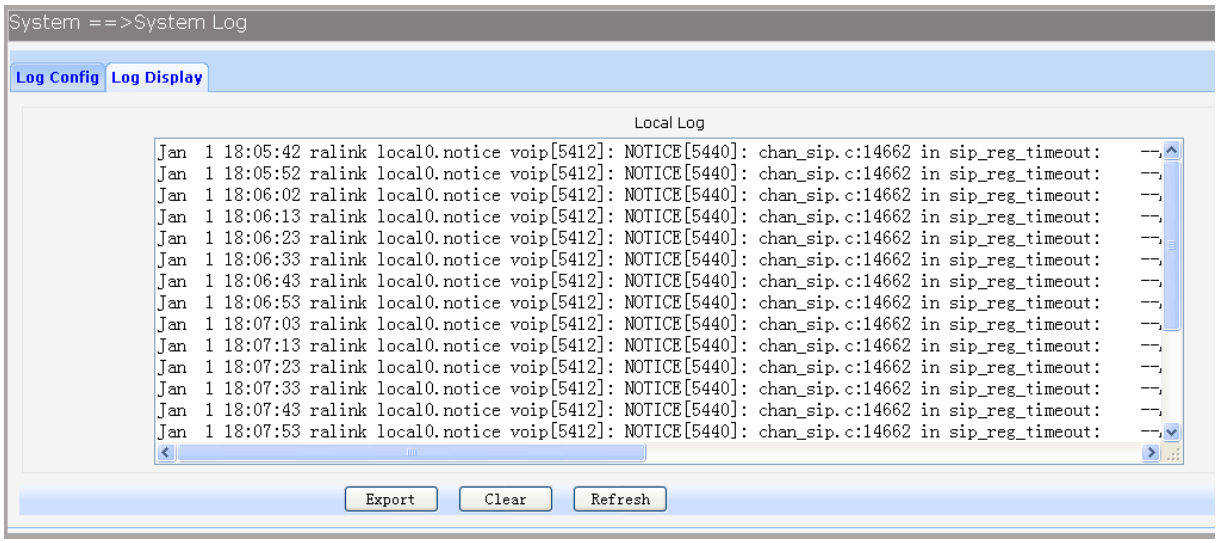


Figure 3-107 *Display System Log*

Click the **Export** button to export all the local logs as a file.
Click the **Clear** button to clear all the local logs from the device permanently, not just from the page.
Click **Refresh** button to refresh the web page.

3.6.8 TR069

TR-069 (Technical Report 069) is a Broadband Forum technical specification entitled CPE WAN Management Protocol (CWMP). It defines an application layer protocol for remote management of end-user devices. As a bi-directional SOAP/HTTP-based protocol, it provides the communication between customer-premises equipment (CPE) and Auto Configuration Servers (ACS). It includes both a safe auto configuration and the control of other CPE management functions within an integrated framework.

3.6.9 Choose the menu System→TR069 to load the following page.

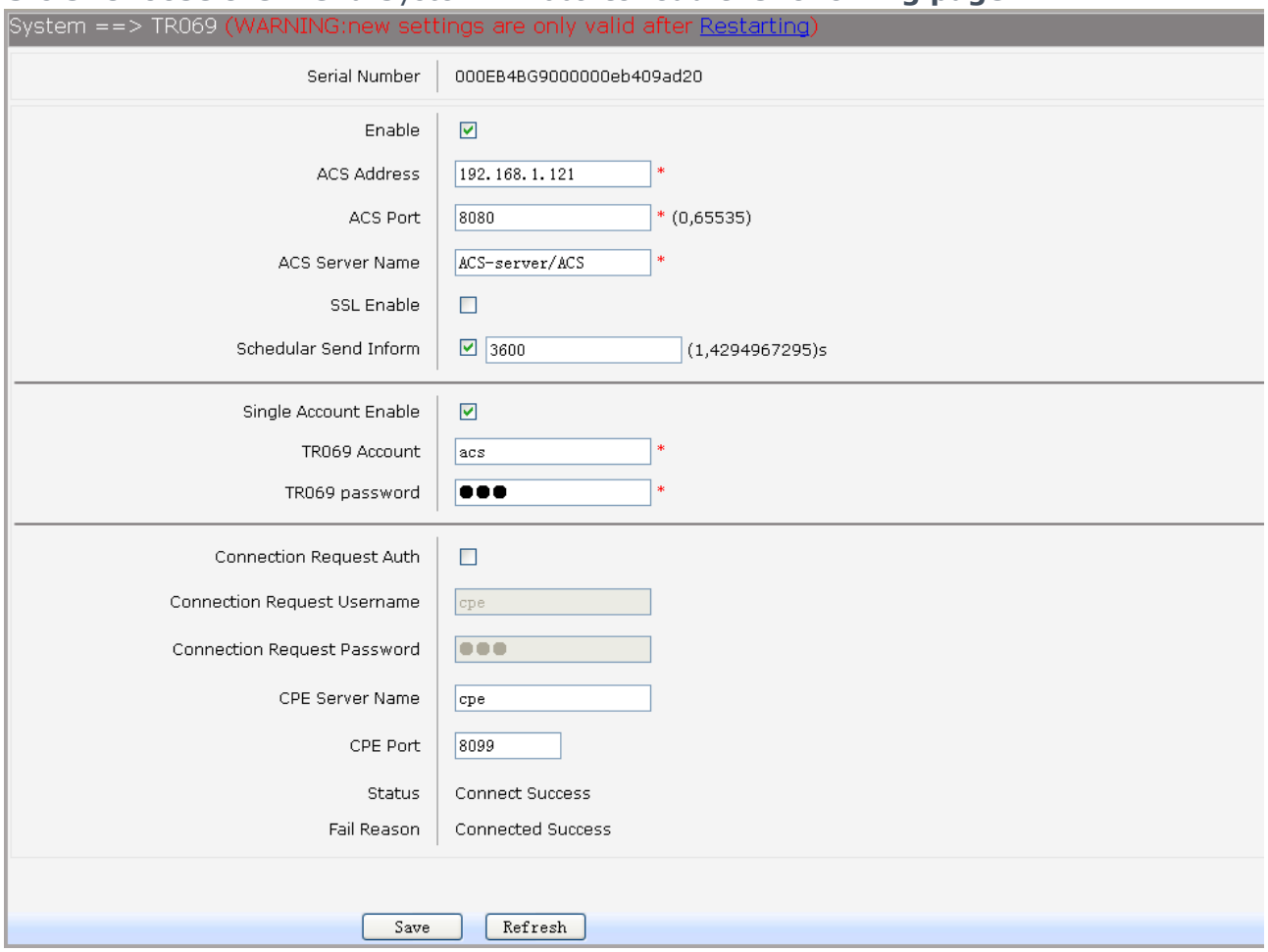


Figure 3-108 *Configure TR069*

The following items are displayed on this screen:

► **Serial Number:** The serial number of device. Read only.
► **Enable:** Enable or disable the TR069 function globally.
► **ACS Address:** Enter the IP address or domain name of ACS.
► **ACS Port:** Enter the port of ACS.

- **ACS Server Name:** Enter the TR069 server name of ACS.
- **SSL Enable:** Enable or disable the SSL(Secure Sockets Layer) for TR069.
- **Schedular Send Inform:** Whether or not the CPE must periodically send CPE information to Server using the Inform method call. Enter the duration in seconds of the interval if enabled.
- **Single Account Enable:** Whether or not the TR069 Account is enabled.
- **TR069 Account:** Username used to authenticate the CPE when making a connection to the ACS.
- **TR069 password:** Password used to authenticate the CPE when making a connection to the ACS.
- **Connection Request Auth:** Whether to authenticate an ACS making a Connection Request to the CPE.
- **Connection Request Username:** Username used to authenticate an ACS making a Connection Request to the CPE.
- **Connection Request Password:** Password used to authenticate an ACS making a Connection Request to the CPE.
- **CPE Server Name:** A part of the HTTP URL for an ACS to make a Connection Request notification to the CPE. In the form:http://host:port/**path**
- **CPE Port:** A part of the HTTP URL for an ACS to make a Connection Request notification to the CPE. In the form:http://host:**port**/path
- **Status:** Connection Status when CPE making a connection to the ACS. Read only.
- **Fail Reason:** Show reason for the failure when CPE making a connection to the ACS. Read only.

Click the **Save** button when finished.
Click **Refresh** button to refresh the web page.

3.6.10 SNMP

You can configure the SNMP parameters and view the registration status of SNMP. Choose the menu **System→SNMP** to load the following page.

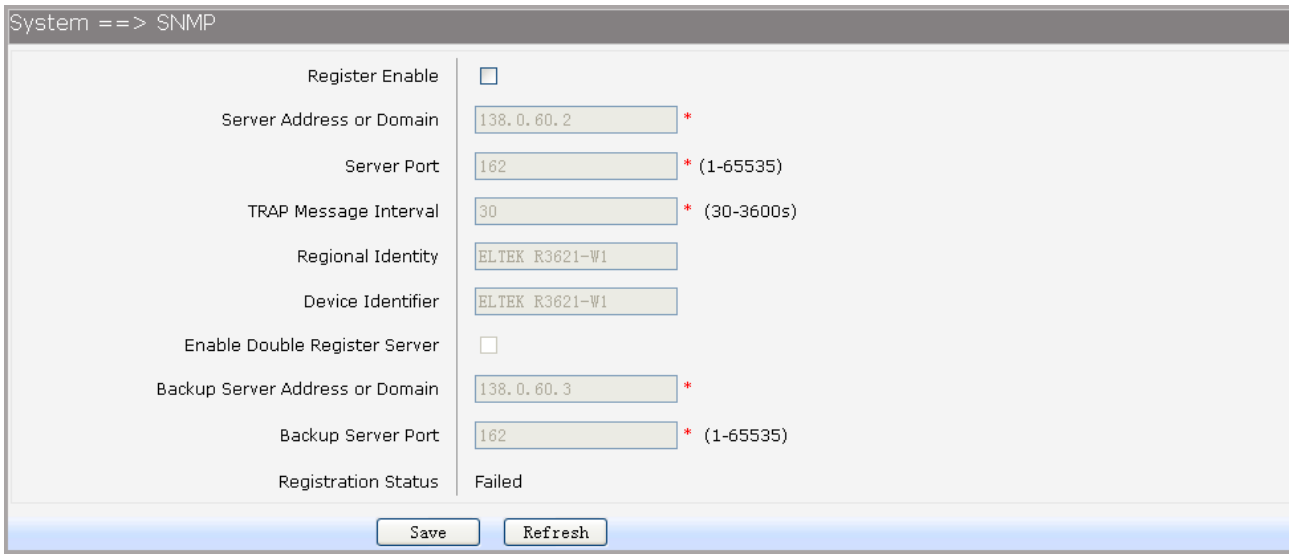


Figure 3-109 *Configure SNMP*

The following items are displayed on this screen:

► **Register Enable:** Check this box to enable SNMP register.

► **Server Address or Domain:** Enter the IP address or domain name of register server.

► **Server Port:** Enter the port of Register Server.

► **TRAP Message Interval:** Set the sending interval between TRAP messages.

► **Regional Identity:** Set the identity of regional.

► **Device Identifier:** Set the identifier of device.

► **Enable Double Register Server:** Check this box to enable backup Register Server.

► **Backup Server Address or Domain:** Enter the IP Address or Domain Name of Backup Register Server.

► **Backup Server Port:** Enter the port of Backup Register Server.

► **Registration Status:** The status of registration. Read only.

Click the **Save** button when finished.

Click **Refresh** button to refresh the web page.

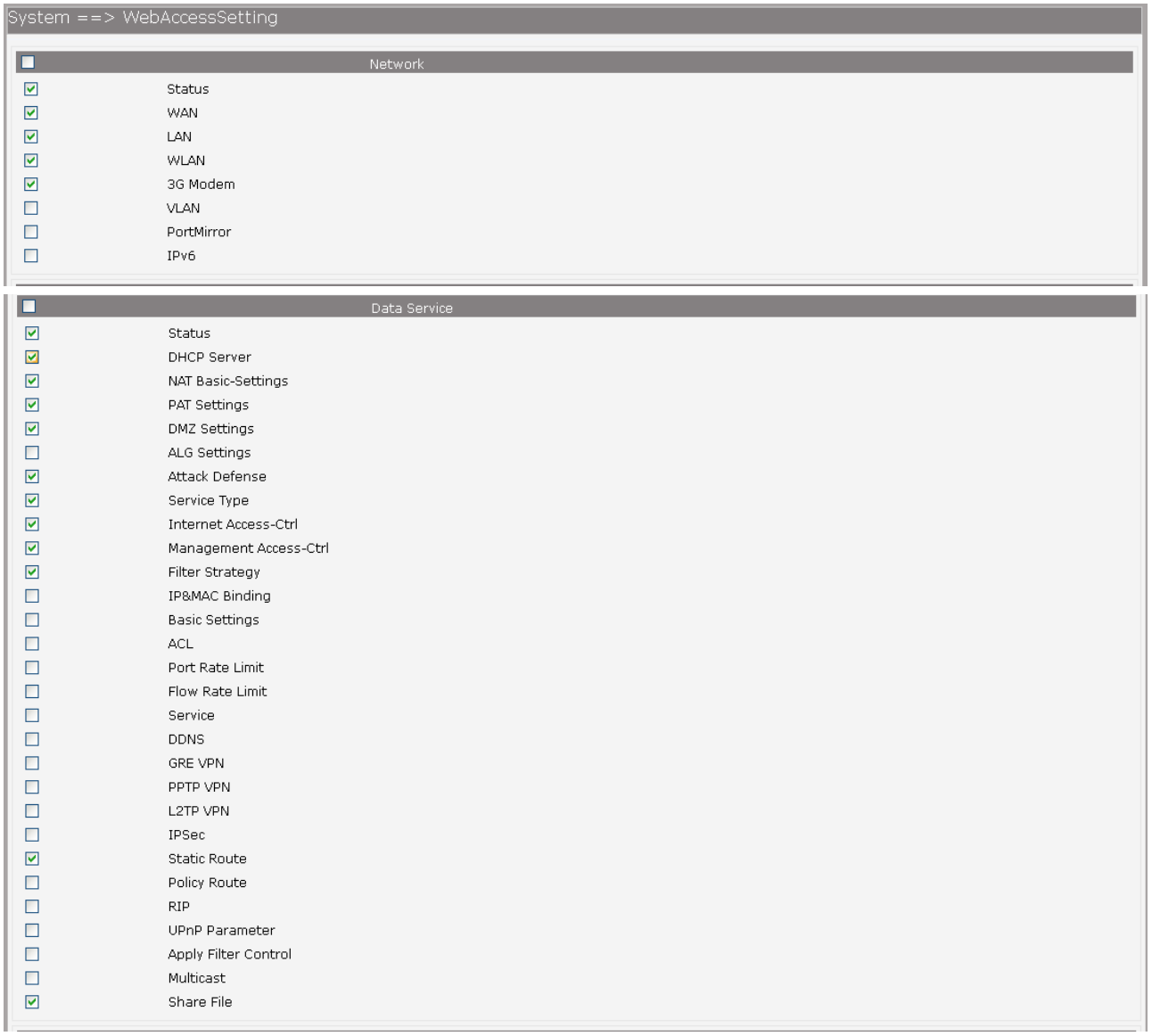
3.6.11 User Access Right

If the permission level of login user is super, you can see this web page. On this page, you can change the access right of the user to access the web pages.

Choose the menu **System→User Access Right** to load the following page.

Figure 3-110 *View users*

If you want to change the user access right, click **detail** in the entry to load the following page.



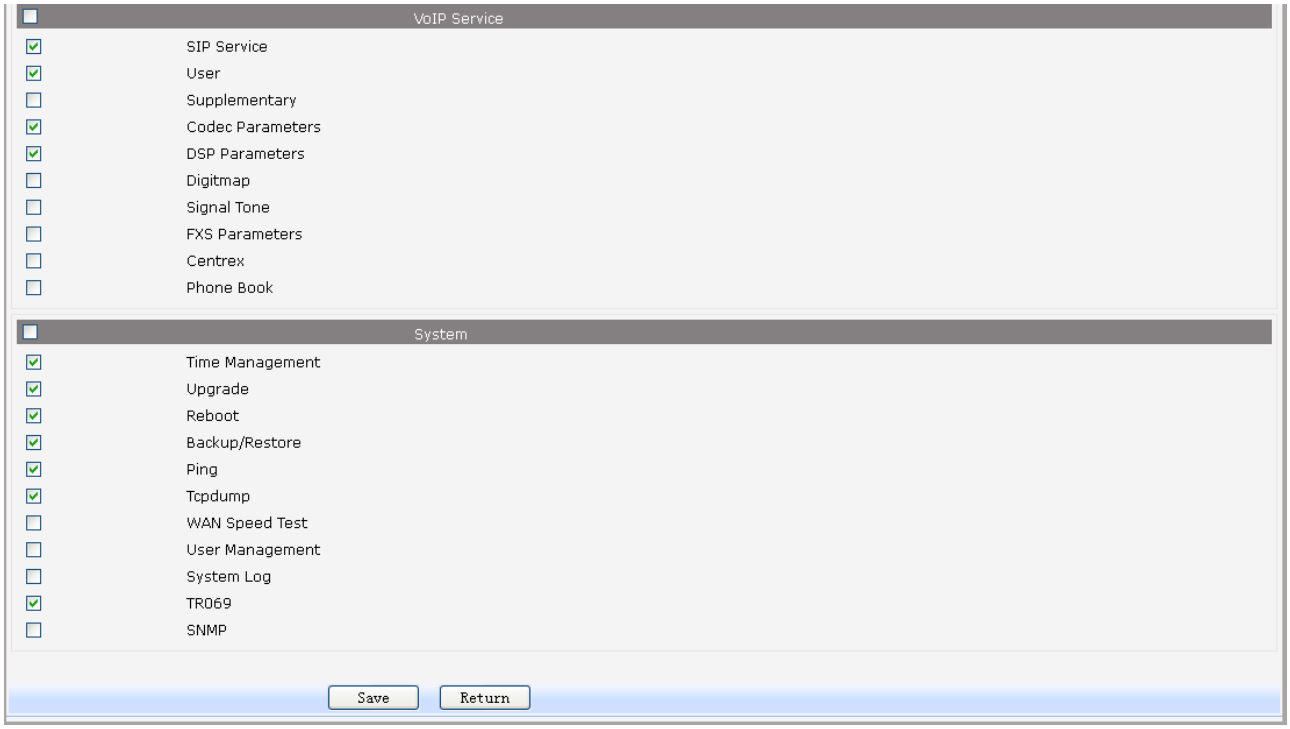


Figure 3-111 *Modify User Access Right*

3.7 Apply

Follow the prompts,Some p arameters will take effect after click the button of "**Apply**".

Home | Network | Data Service | System | Apply | Logout
System ==> Time Management (WARNING:new settings are only valid after clicked [Apply])

Figure 3-112 *Apply*

3.8 Print Function

The device supports to link printer port and provides share printing capabilities to other computers. To use print function, you need do the following steps.

1. Add Printer

Open the windows of the Control Panel, select Printers and Faxes, and add the printer

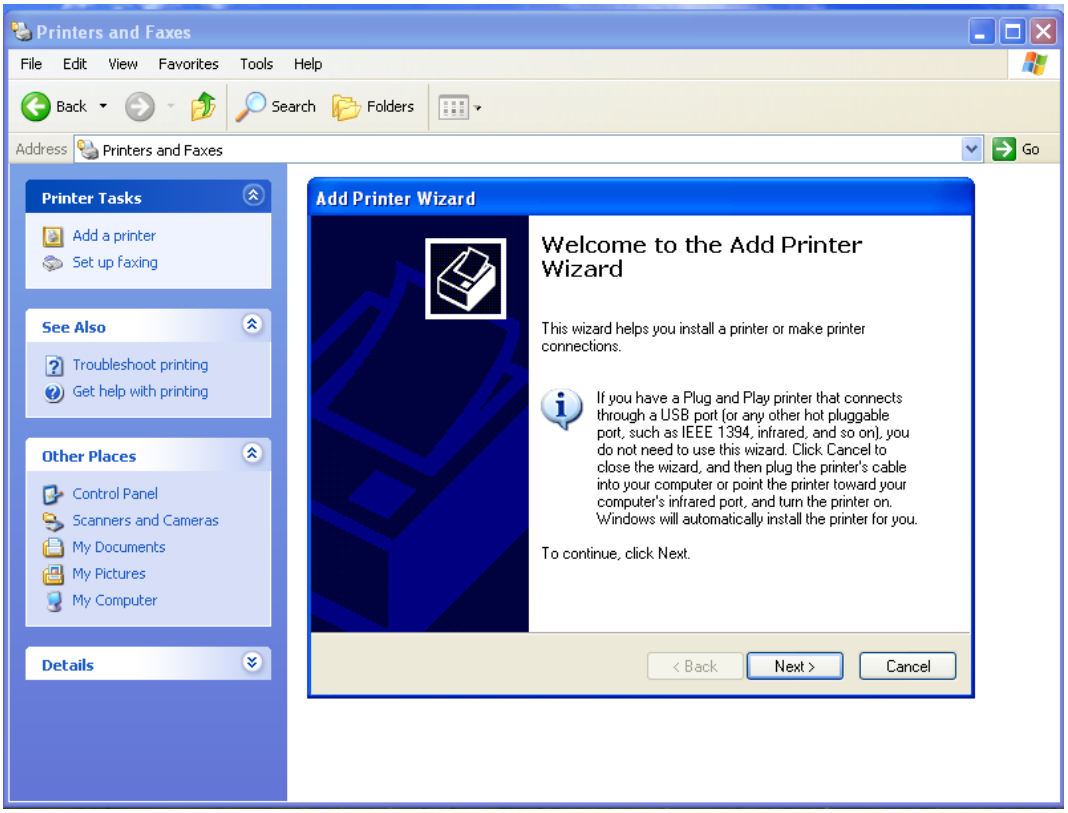

Printers and Faxes
File Edit View Favorites Tools Help
Back Search Folders
Address Printers and Faxes
Go
Printer Tasks
Add a printer
Set up faxing
See Also
Troubleshoot printing
Get help with printing
Other Places
Control Panel
Scanners and Cameras
My Documents
My Pictures
My Computer
Details
Add Printer Wizard
Welcome to the Add Printer Wizard
This wizard helps you install a printer or make printer connections.
If you have a Plug and Play printer that connects through a USB port (or any other hot pluggable port, such as IEEE 1394, infrared, and so on), you do not need to use this wizard. Click Cancel to close the wizard, and then plug the printer's cable into your computer or point the printer toward your computer's infrared port, and turn the printer on. Windows will automatically install the printer for you.
To continue, click Next.
< Back
Next >
Cancel

Figure 3-113 *Add Printer*

2. Connecting local printer

Select "Local printer attached to this computer."

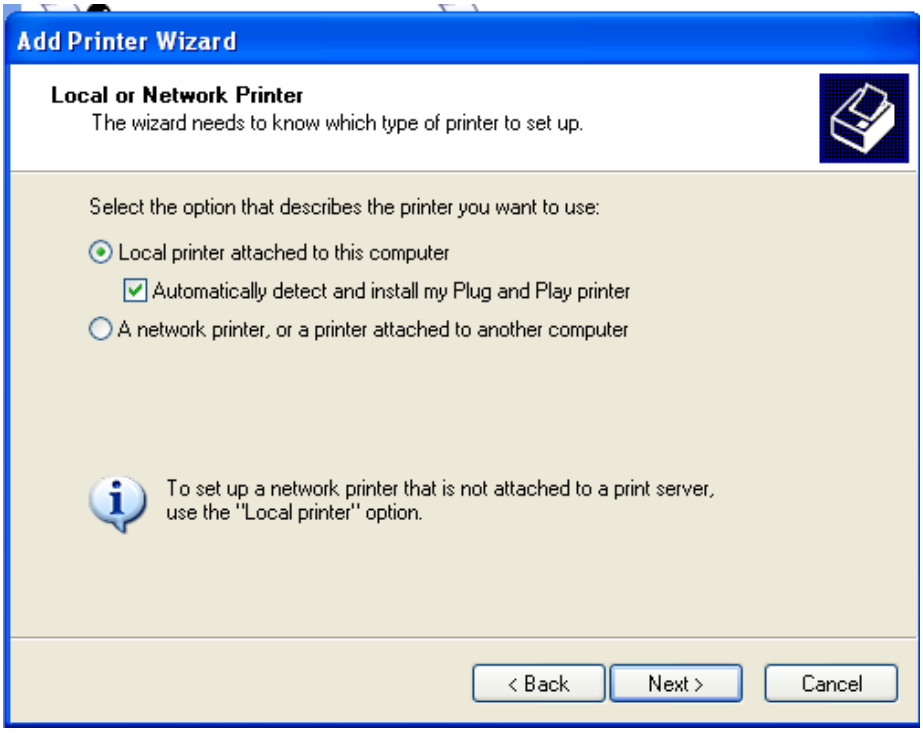

Add Printer Wizard
Local or Network Printer
The wizard needs to know which type of printer to set up.
Select the option that describes the printer you want to use:
Local printer attached to this computer
Automatically detect and install my Plug and Play printer
A network printer, or a printer attached to another computer
To set up a network printer that is not attached to a print server, use the "Local printer" option.
< Back
Next >
Cancel

Figure 3-114 *Connecting local printer*

3. Create a new port

Select "Create a new port" and select "Standard TCP / IP Port"

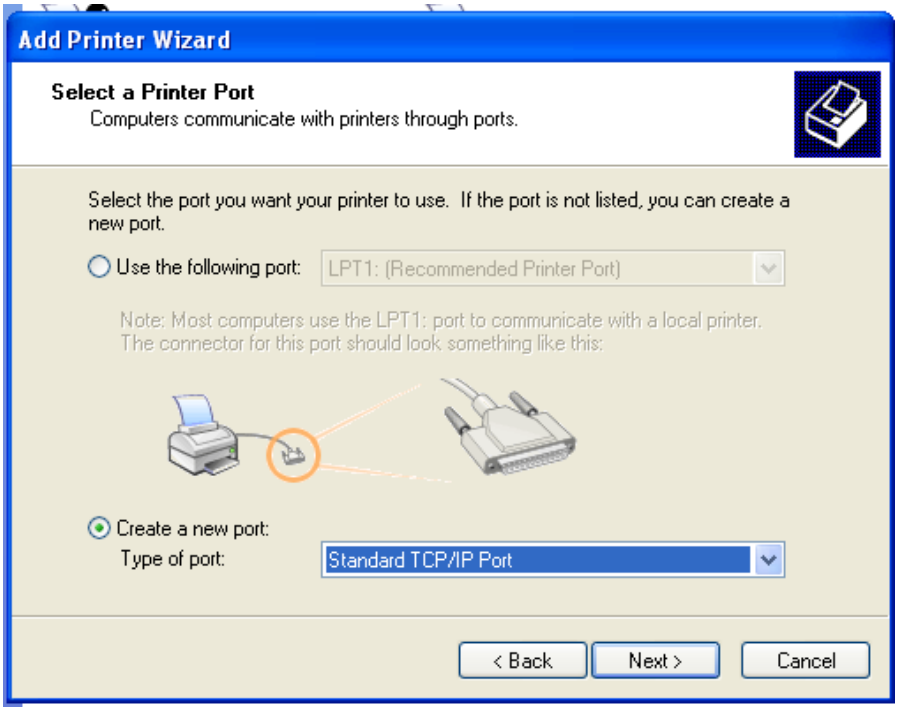

Add Printer Wizard
Select a Printer Port
Computers communicate with printers through ports.
Select the port you want your printer to use. If the port is not listed, you can create a new port.
Use the following port:
LPT1: (Recommended Printer Port)
Note: Most computers use the LPT1: port to communicate with a local printer. The connector for this port should look something like this:
Create a new port:
Type of port:
Standard TCP/IP Port
< Back
Next >
Cancel

Figure 3-115 *Create a new port*

4. Add print device

Click Next, and add IP devices, assuming the device IP is 192.168.1.1.

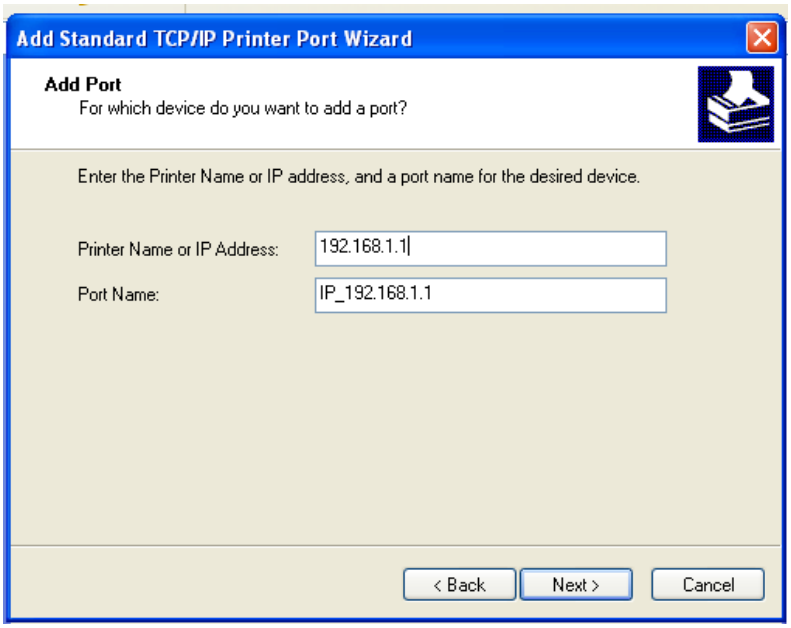

Add Standard TCP/IP Printer Port Wizard
Add Port
For which device do you want to add a port?
Enter the Printer Name or IP address, and a port name for the desired device.
Printer Name or IP Address:
192.168.1.1
Port Name:
IP_192.168.1.1
< Back
Next >
Cancel

Figure 3-116 *Add IP LAN devices*

5. Configure printer port

Select "Custom", click "Settings" to confirm the agreement as "RAW (R)"

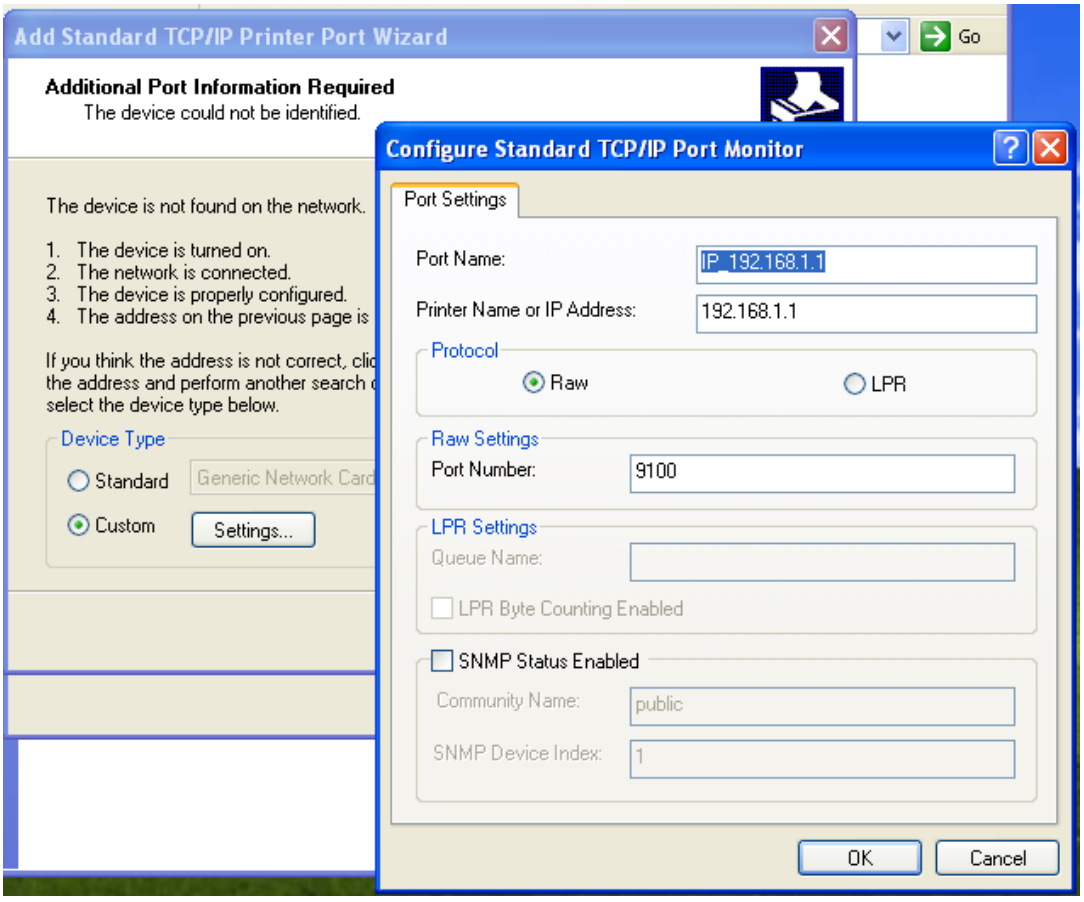


Figure 3-117 *Configuer printer port*

6. Add Printer Driver

According to the printer manufacturer and printer type, select the appropriate driver. If the computer has not printer driver, you need to install the printer driver. After adding the printer, you can print through the USB printer.

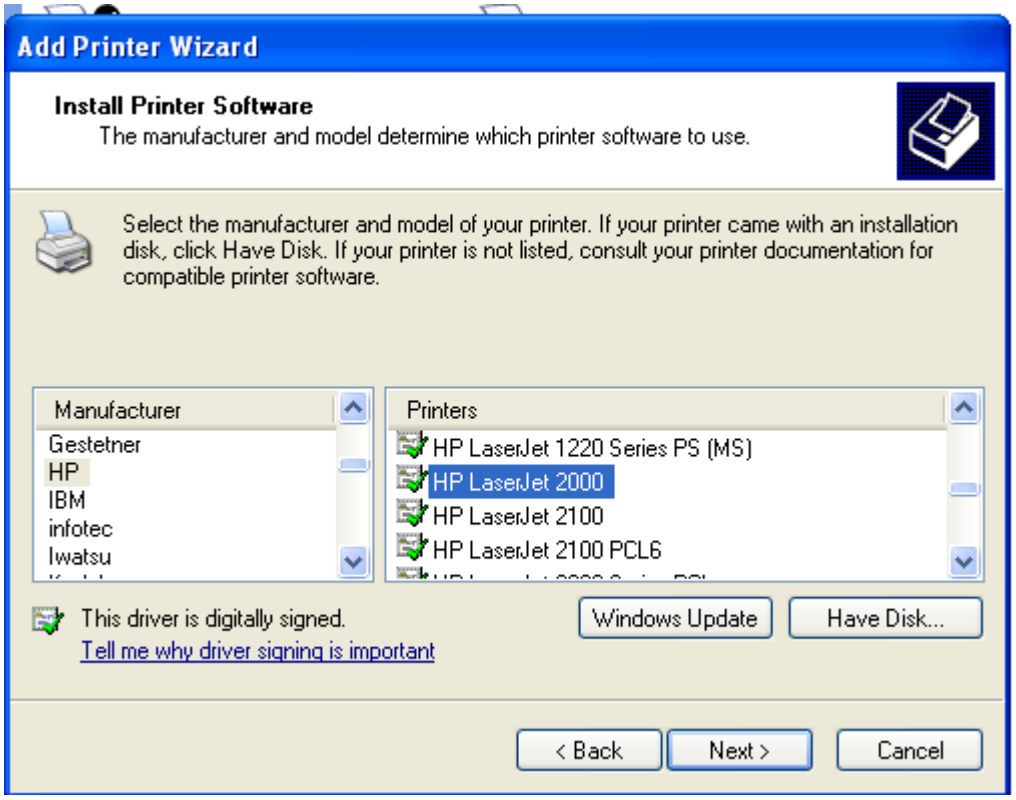

Add Printer Wizard
Install Printer Software
The manufacturer and model determine which printer software to use.
Select the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for compatible printer software.
Manufacturer
Gestetner
HP
IBM
infotec
Iwatsu
Printers
HP LaserJet 1220 Series PS (MS)
HP LaserJet 2000
HP LaserJet 2100
HP LaserJet 2100 PCL6
This driver is digitally signed.
Tell me why driver signing is important
Windows Update
Have Disk...
< Back
Next >
Cancel

Figure 3-118 *Add Printer Driver*

4 Troubleshooting

1. How can I make sure power switch is on?

To make sure power switch is on, please follow the steps below.

STEP1: Make sure power adapter is correctly connected.

STEP2: Switch power on by setting switch button in correct status, press down the side labeled with "I" of button.

STEP3: Check the power led, steady green light for power on and off light for power off

> **NOTE:**
>
> The swith button, stand for "switch on" status.

2. How to do soft reset for the device?

You can do soft reset by one of following two ways

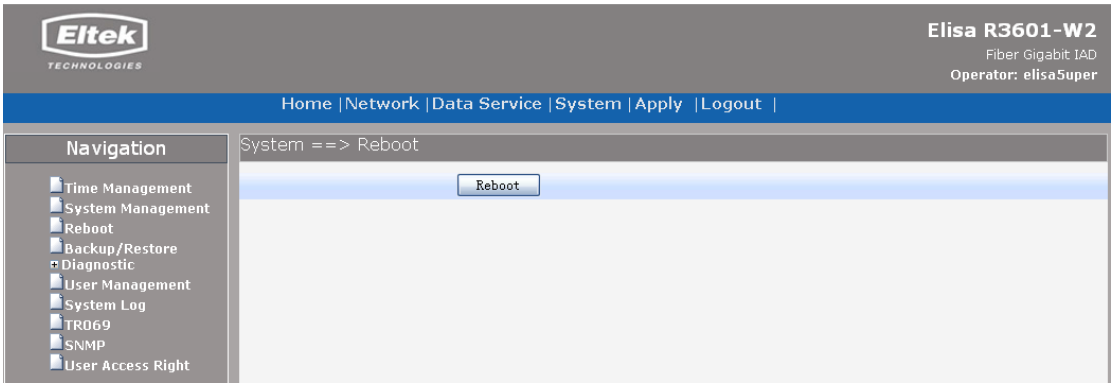
a. reset from web console

STEP1: Open your web browser and type in the LAN IP address of the device (192.168.1.1 by default).

STEP2: Enter the username and password (default or you specified), and then click login.

STEP3: Click the system tab at the top, and then click the Reboot Tab on the left navigation.

STEP4: Click Reboot button to reset.



b. reset from CLI console

STEP1: In PC of Windows OS, choose run in start menu and type in cmd to go into DOS environment, input "telnet 192.168.1.1(by default)"

STEP2: Enter the username and password to go into command line configuration mode.

STEP3: do soft reset by command reset.

> **NOTE:**
> CLI console can be used if only already configured to allow telnet access, the default is forbidden.

3. How do I reset my device to factory default settings?

To perform a factory reset, please follow the steps below.

STEP1: With the device on, place a paperclip into the hole on the side of the unit labeled RST.

STEP2: Hold paperclip down for at least 5 seconds and release

STEP3: The device will reboot automatically and then the NET light is off. Once the NET light is on again, the device has been reset and is ready to use.

NOTE:
Resetting the device does not reset the firmware to an earlier version, but it will change all settings back to factory defaults.

4. How do I crash recover my device?

If you are experiencing device reboots, try using the crash recovery method and reflashing an earlier firmware. Use the following steps to crash recover your device:

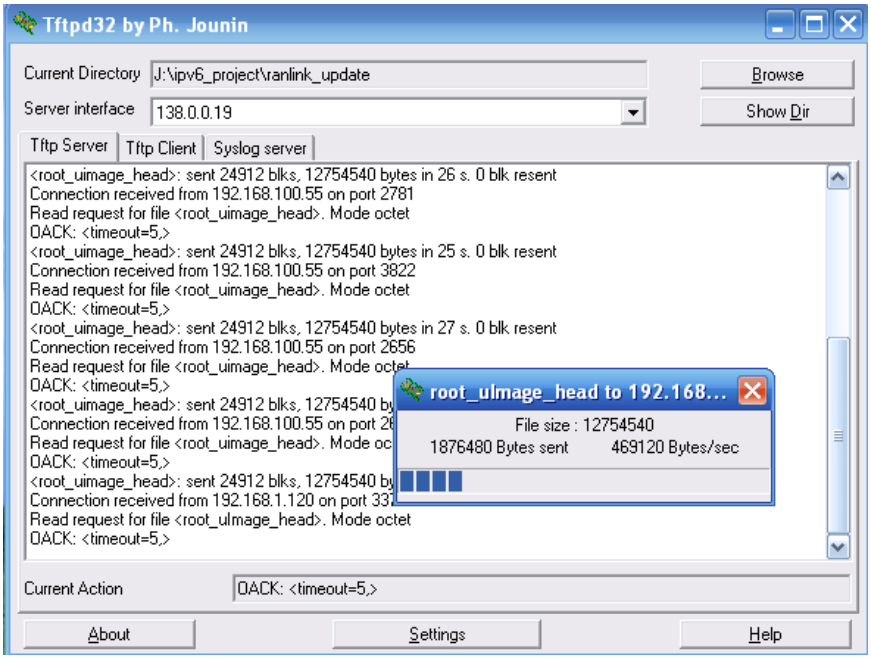
STEP1: get firmware and tftp tool "tftpd32.exe"

STEP2: place "tftpd32.exe" in the directory of firmware, rename firmware with name "root_uImage_head"

STEP3: run "tftpd32.exe" firstly and connect PC with LAN port of device by net cable.

STEP4: set the corresponding network adapter of PC with IP 192.168.1.12/255.255.255.0

STEP5: plug power in and place a paperclip into the hole on the side of the unit labeled RST. Hold paperclip down for at least 5 seconds and release. You can see progress of file transferring.



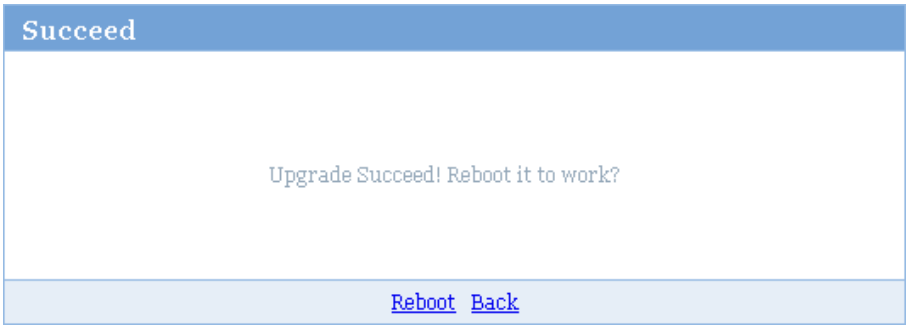
Wait for minutes for writing firmware into flash and rebooting automatically.

5. How do I upgrade the firmware on my device?

To upgrade the firmware, please follow the steps below.

STEP1: Open your web browser and type in the LAN IP address of the device (192.168.1.1 by default).

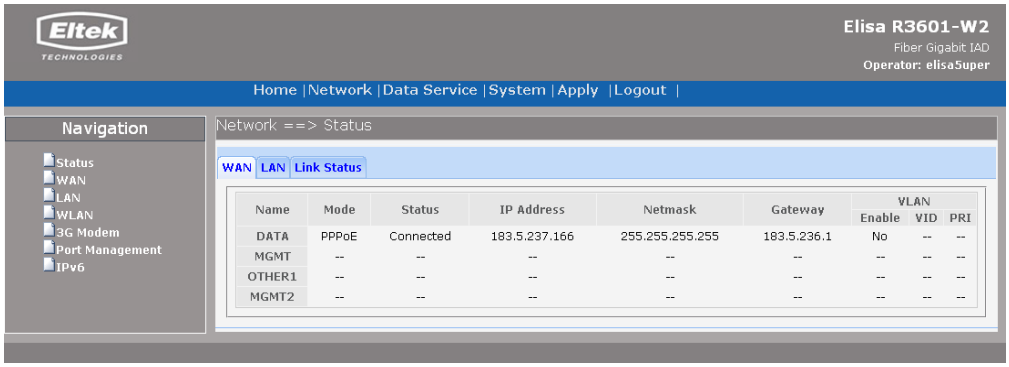
STEP2: Enter the username and password (default or you specified), and then click login.
STEP3: Click the System tab at the top, then click the System Management Tab on the left navigation.
STEP4: Click Browser to choose firmware file and click Upgrade to commence the firmware upgrade. When the upgrade is finished, the page would jump to page of upgrade result. Choose Reboot or Back to go ahead.



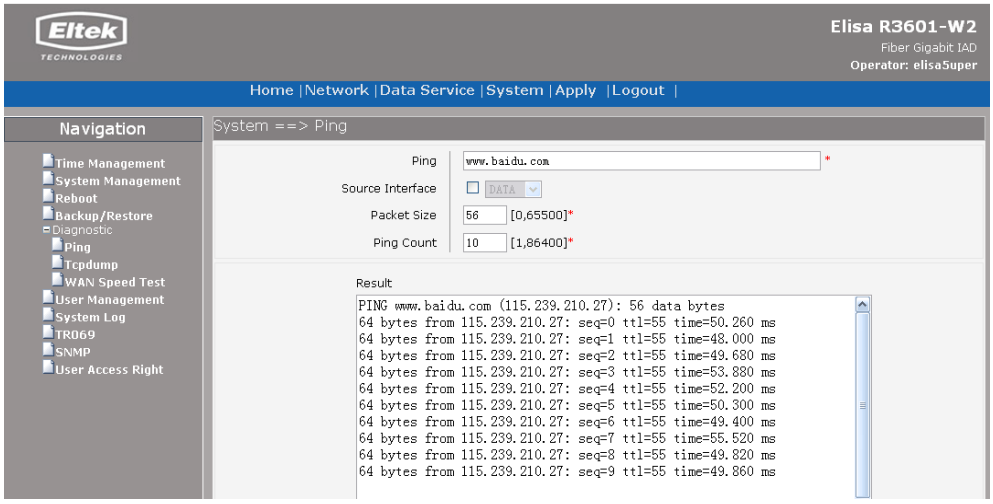
NOTE:
1. A firmware upgrade should only be carried out over a wired connection between your computer and the device
2. Do not power off the router at any time during the firmware upgrade procedure, as this may damage the unit
3. During upgrading, don't switch to other page from current page

6. How can I check the internet connections?

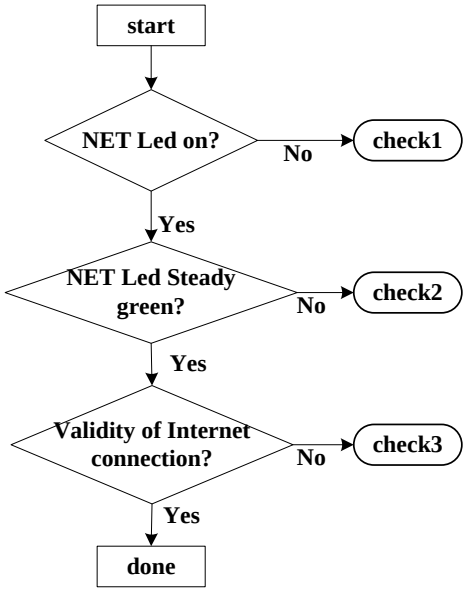
You can choose one mode of static IP, DHCP or PPPoE to connect internet. Whichever way you choose, once connected successfully, you can check step by step:
STEP1: Check NET light. The NET light should be steady green.
STEP2: check the WAN status. Login from web console, Click the Network tab at the top, then click the Status Tab on the left navigation, you can check the WAN status.


Elisa R3601-W2
Fiber Gigabit IAD
Operator: elisa5uper
Home | Network | Data Service | System | Apply | Logout |
Navigation
Status
WAN
LAN
WLAN
3G Modem
Port Management
IPv6
Network ==> Status
WAN LAN Link Status
Name Mode Status IP Address Netmask Gateway VLAN Enable VID PRI
DATA PPPoE Connected 183.5.237.166 255.255.255.255 183.5.236.1 No -- --
MGMT -- -- -- -- -- -- -- --
OTHER1 -- -- -- -- -- -- -- --
MGMT2 -- -- -- -- -- -- -- --

STEP3: Check validity of Internet connection. Click the System tab at the top, then click the Diagnostic Tab on the left navigation, choose Ping menu. Try to ping Internet IP or domain name to judge validity of Internet connection.



Troubleshooting in check internet connection, please refer to following flowchart.



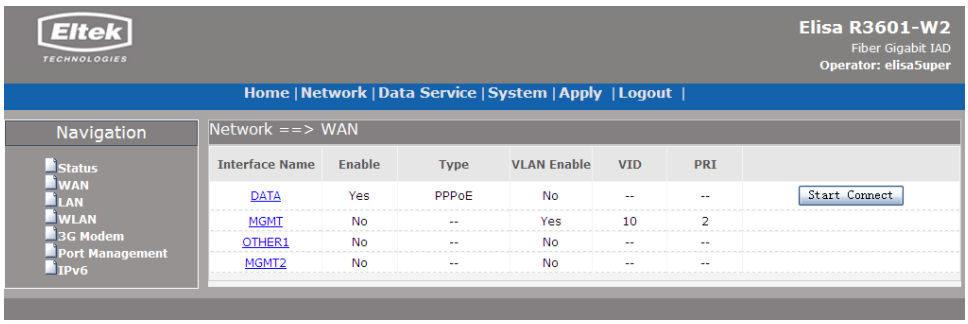
Check1:

Make sure original power adapter is correctly connected and the device is power on. The device is run normally.

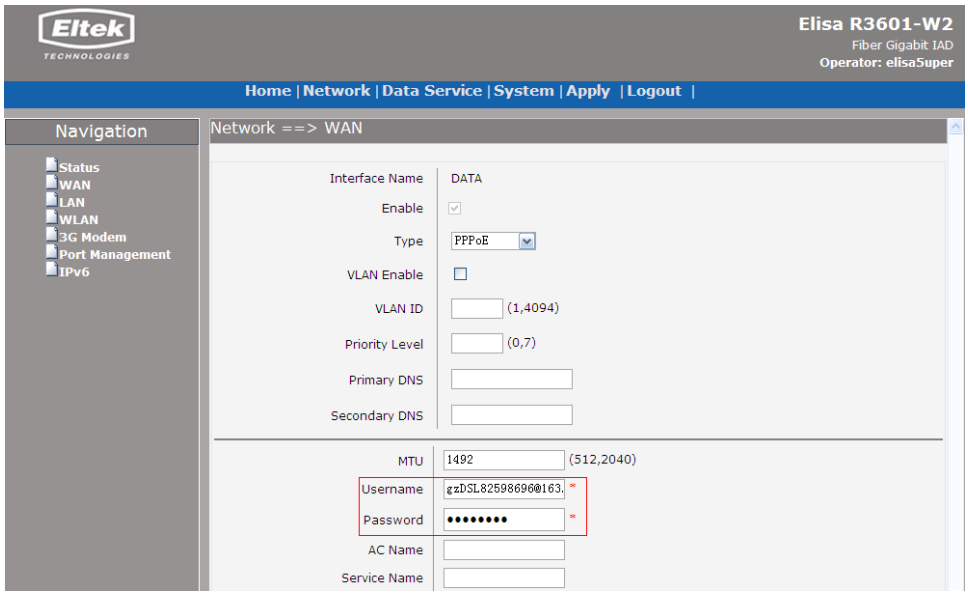
Check2:

Firstly, Check the physical connection of WAN, make sure WAN connect with superior device (DHCP server, ADSL modem or Internet router .etc);

And then, check the parameters of WAN connection is correct, login web console, Click the Network tab at the top, then click the WAN Tab on the left navigation. Choose the interface you used for WAN connection



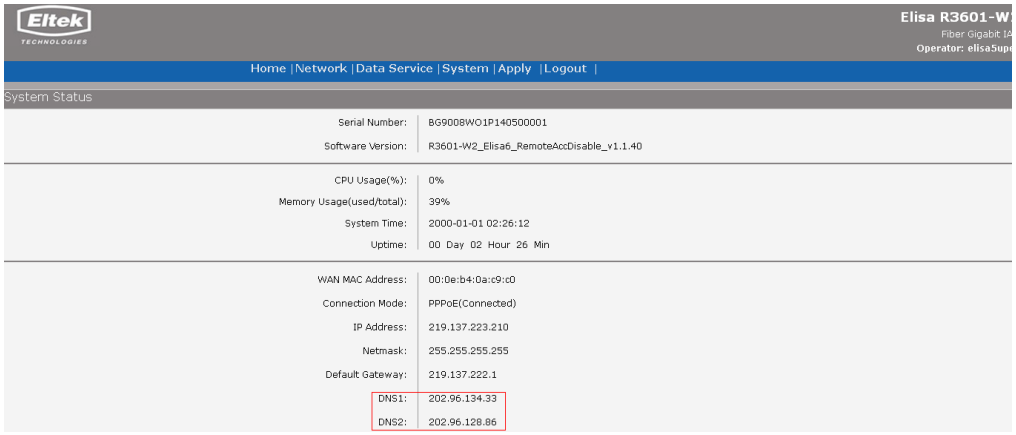
Check the parameters (take PPPOE mode as example), ensure that the username and password is connect.



If above two option is ok, please check superior device is available. For example, superior device is supply access service and allow our device to authenticate in.

Check3:

Now it seems that the net connection is ok. But the device can't access Internet resource. If you failed to ping one IP of Internet, please check the superior device is with ISP service. If you just failed to ping a domain name, ensure that the device get valid DNS.



If you can't locate the problem of connection from above check, please contact us.

NOTE:
In fact, if the NET Led is steady green, accordingly the WAN status should be connected in STEP2.

5 Declaration of Conformity

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EC Declaration of Conformity for

Eltek R3621-W1, Eltek R3621-W2
Eltek R3601-W1, Eltek R3601-W2
Eltek R3421-W1, Eltek R3421-W2

Gigabit Ethernet Wi-Fi 11n IAD

The product described above in the form as delivered is in conformity with the requirements of R&TTE DIRECTIVE 1999/5/EC through the following standards:

Safety, LVD	EN 60950-1 + A11:2009 + A12	2012
Radio spectrum	EN 300 328 V1.7.1	2006
EMC, emission	EN 61000-4-5	2005
EMC, radio equipment	ETSI EN 301 489-1 V1.9.2 ETSI EN 301 489-17 V2.2.1	2011 2012

For the ecodesign requirements for energy-related products DIRECTIVE 2009/125/EC we are conform with:

External PS	Regulation (EC) No. 278/2009	2009
Standby and off mode	Regulation (EC) No 1275/2008	2008

Additional voluntary conformity tests:

Protection	ITU-T K.21	2003

Eltek Technologies AG.
CH-Zürich, February 2013

Markus Götsch
CTO

Faton Ramadani
Product Management

This declaration certifies the conformity to the specified directives but contains no assurance of properties. The safety documentation accompanying the product shall be considered in detail.

WEEE Directive & Product Disposal

At the end of its serviceable life,
this product should not be treated as household or general waste.
It should be handed over to the applicable collection point for
the recycling of electrical and electronics equipment,
or returned to the supplier for disposal.

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